CENTRAL AREA TRANSPORTATION STUDY 1975-1990

CITY OF LOS ANGELES
DEPARTMENT OF TRAFFIC
Gerald W. Skiles : City Traffic Engineer

Central Area Transportation Study
1975-1990

Prepared by the
Program Development Division
Transportation Planning Section
as a part of the
Southern California Association of Governments
Unified Work Program
Task Nos. 1109.03, 1102.09, 1102.02

June 1977

City of Los Angeles
Department of Traffic
G. W. Skiles
Acting City Traffic Engineer

ACKNOWLEDGEMENT

Appreciation is expressed to the Southern California Association of Governments (SCAG), the State of California Department of Transportation (Caltrans), the Southern California Rapid Transit District (SCRTD), and the California Department of Transportation's Los Angeles Regional Transportation Study (LARTS) group for their cooperation and assistance in collection and processing of data for the Central Area Transportation Study. The City of Los Angeles also expresses its appreciation to other neighboring jurisdictions for their continued cooperation and assistance and hopes that the information in this report will be useful in their traffic and transportation planning.

The preparation of this report was financed in part through grants from the U.S. Department of Transportation Urban Mass Transportation Administration under the Urban Mass Transportation Act of 1964, as amended, and the Federal Highway Administration under the Federal Aid Highway Act of 1968, as amended. The opinions, findings, and conclusions expressed are independent products of the Transportation Planning staff of the Department of Traffic and are not necessarily those of the City Council or of other local, State or Federal agencies.

Project Staff

W. R. Schroeder, P. E.
Traffic Engineer

T. K. Conner, P.E.
Traffic Engineering Associate

J. F. McLaughlin
Traffic Engineering Assistant

J. M. Okazaki, P.E.
Traffic Engineering Assistant

R. R. Prepena, P.E.
Traffic Engineering Assistant

A. D. Rifkin
Traffic Engineering Assistant

C. A. Godel
Traffic Engineering Aide

TABLE OF CONTENTS

LIST OF PLATES

LIST OF TABLES

ABSTRACT

The Central Area Transportation Study (CATS) is a subregional transportation planning study of the Central Los Angeles area bounded by the Ventura Freeway on the north, Slauson Avenue on the south, the City boundary on the east, and Robertson Boulevard on the west.

An inventory was made of traffic conditions in this 120-square-mile area, including data on 24-hour traffic volumes, route speeds and accidents. These data provided a basis for identifying current transportation deficiencies.

From demographic data which predicted a high level 1990 population of 3.5 million inhabitants, computer-based analytical travel-forecasting techniques were used to project future traffic volumes within the City. Analysis of these projections and existing conditions identified four subareas which required more detailed study.

The Los Angeles Central Business District is the center of employment and commercial activity for the region and is characterized by high traffic volumes, relatively slow peak-period travel speeds and a concentration of high-frequency accident locations. Existing traffic circulation is documented with excerpts from the 1976 Downtown Cordon Count Study. Analysis of future conditions and recommendations are presented.

The Wilshire District is the most densely developed area of the City that is not served directly by a freeway. Problems of surface street congestion and proposals for transit projects are discussed. Recommendations are presented for future improvements in the street system and transit service.

A concentration of high-volume streets and high accident rate locations was documented in the Hollywood area. Existing auto and bus volumes and

person-trips were recorded by a cordon count, and recommendations for improvements based on traffic projections are included in the report.

Finally, the decision on whether to complete the Long Beach (Route 7) Freeway between Valley Boulevard and the Foothill Freeway will have major impact on traffic conditions and transportation in general in the El Sereno and Monterey Hills areas of the City. A link-use desire line map is presented showing origins and destinations of the freeway link users.

SUMMARY OF RECOMMENDATIONS

Central Business District

Several alternatives are proposed to maintain or improve mobility, while accommodating the expanding transportation needs in the CBD. These transportation Systems Management (TSM) techniques include:

Traffic Operational Improvements

- Construct the Downtown Unit II Traffic Signal System Modernization.
- Proceed with design and installation of a computer-based traffic surveillance and control system.
- Expand the hours of the stopping prohibitions to alleviate midday congestion at critical locations.
- Conduct a comprehensive study of goods movement in the Downtown area.

Measures to Increase Vehicle Occupancy

- Support Commuter Computer and other efforts to expand and promote carpool and vanpool programs.

Improve Service and Preferential Treatment for Buses and High-Occupancy Vehicles (HOV)

- Increase and upgrade bus service where justified by costs and patronage.
- If shown feasible by current studies, convert Broadway into a high-capacity bus mall and provide preferential lanes for high-occupancy vehicles on Sunset Boulevard and Glendale Boulevard.

Auto Intercepts with Circulation/Distribution System

- Continue to evaluate in the preliminary engineering phase both the People Mover and the all-bus (minibus) circulation/distribution system.

Parking Management

- Continue to assist the City's Parking Management Program staff in evaluating parking management concepts.

Diversion of Through Traffic

- Encourage Caltrans to increase the capacity of existing freeways around the CBD.
- Realign and widen Olympic Boulevard from Los Angeles Street to San Pedro Street.
- Realign and widen Venice Boulevard between Figueroa Street and Grand Avenue.

Wilshire District

The future circulation system for the Wilshire District will require improvements in both public transit and the highway network. A better balance between the automobile and public transportation is needed to improve traffic flow, conserve energy and reduce air pollution.

Transportation Systems Management

- Western Avenue between Venice Boulevard and Olympic Boulevard and between 8th Street and N/O Wilshire Boulevard - provide channelization and parking restrictions.
- Normandie Avenue/Irolo Street between Wilshire Boulevard and San Marino Street - install peak-period parking restrictions.
- Western Avenue between the Santa Monica Freeway and Adams Boulevard - study intersection channelization and parking restrictions.
- 3rd Street between Beaudry Avenue and Vermont Avenue - install channelization and parking restrictions.
- 3rd Street between Croft Avenue and Robertson Boulevard - evaluate feasibility of channelization and parking restrictions.
- Beverly Boulevard between Fairfax Avenue and Vermont Avenue - provide offset and/or intersectional channelization.
- Vermont Avenue between Wilshire Boulevard and Adams Boulevard - evaluate feasibility of channelization and peak-period parking restrictions.

- Venice Boulevard between Arlington Avenue and Figueroa Street - evaluate feasibility of channelization and peak-period parking restrictions.

- Vermont Avenue between Wilshire Boulevard and Adams Boulevard - evaluate feasibility of channelization and peak-period parking restrictions.

- Continue to evaluate off-center treatment and/or full preferential signal timing for arterials such as 6th Street, Wilshire Boulevard, Olympic Boulevard, Pico Boulevard, La Brea Avenue and La Cienega Boulevard.

- Determine a staged program of operational (TSM) improvements for Western Avenue and Vermont Avenue.

Selected Street Improvements

- Robertson Boulevard - align and widen to secondary highway standards.

- Fairfax Avenue - align and widen to secondary highway standards.

- Crescent Heights Boulevard - increase safety by providing roadway width for left-turn channelization at Melrose Avenue, Beverly Boulevard, 3rd Street, 6th Street, and Wilshire Boulevard.

- Highland Avenue/Edgewood Place - improve capacity and alignment between Wilshire Boulevard and La Brea Avenue.

- Arlington Avenue/Wilton Place - eliminate jogs in alignment and widen to secondary highway standards.

- Normandie Avenue/Irolo Street - align and widen to secondary highway standards.

- Increase capacity of Venice Boulevard between La Brea Avenue and the CBD.

Public Transportation

- Expand bus circulation within the Wilshire area with a minibus type system.

- Encourage and support carpooling and vanpooling.

- Study feasibility of preferential lanes for HOV in conjunction with operational improvements which simultaneously increase capacity.

Hollywood

Operational and capital improvements will be needed in the central Hollywood area to provide for anticipated growth in demand.

Route 2 Corridor

- Conduct detailed studies of proposed alternatives and implement needed improvements.

Transportation Systems Management

- Modernize and complete interconnection of 41 locations in the Hollywood South Traffic Signal System.
- Expand parking restrictions to alleviate peak-period congestion.
- Improve capacity and operation of key intersections such as Sunset Boulevard and Highland Avenue, Sunset Boulevard and La Brea Avenue and Franklin Avenue and Highland Avenue.

Street Improvements

- Conduct a study with the Bureau of Engineering to evaluate alternatives to improve circulation and cross-mountain travel in the hillside area in the Fairfax Avenue/Laurel Canyon Boulevard sector, including evaluation of a tunnel alternative.
- Widen Beverly Boulevard, Melrose Avenue, Santa Monica Boulevard, Fountain Avenue, Franklin Avenue and Western Avenue to full General Plan widths to accommodate future traffic demand.

Long Beach Freeway Extension

The City of Los Angeles should implement all possible actions to promote the construction of the Long Beach Freeway between Valley Boulevard and California Boulevard in Pasadena.

I.
INTRODUCTION

The Department of Traffic previously published the Central Area Cooperative Transportation Study containing information on existing traffic conditions based on 1970 traffic data. The following report is an update of the 1970 study and includes data on traffic volumes, accidents and travel times based on information gathered in 1975 and 1976.

In addition, the report contains a forecast of future travel demands for the design year 1990 and analysis of existing and future traffic conditions. Specific problem areas have been identified and are discussed in detail, including recommendations for improvement.

The revised Central Area Transportation Study (CATS) covers approximately 120 square miles, or one-fourth of the land area of the City of Los Angeles, containing 51 percent of the City's population. The general boundaries of the study area are Slauson Avenue on the south, the Los Angeles City boundary on the east, the Ventura Freeway on the north and Robertson Boulevard on the west, as shown on Plate 1. The area is served by 480 miles of General Plan highways and 50 miles of freeways (see Plate 2).

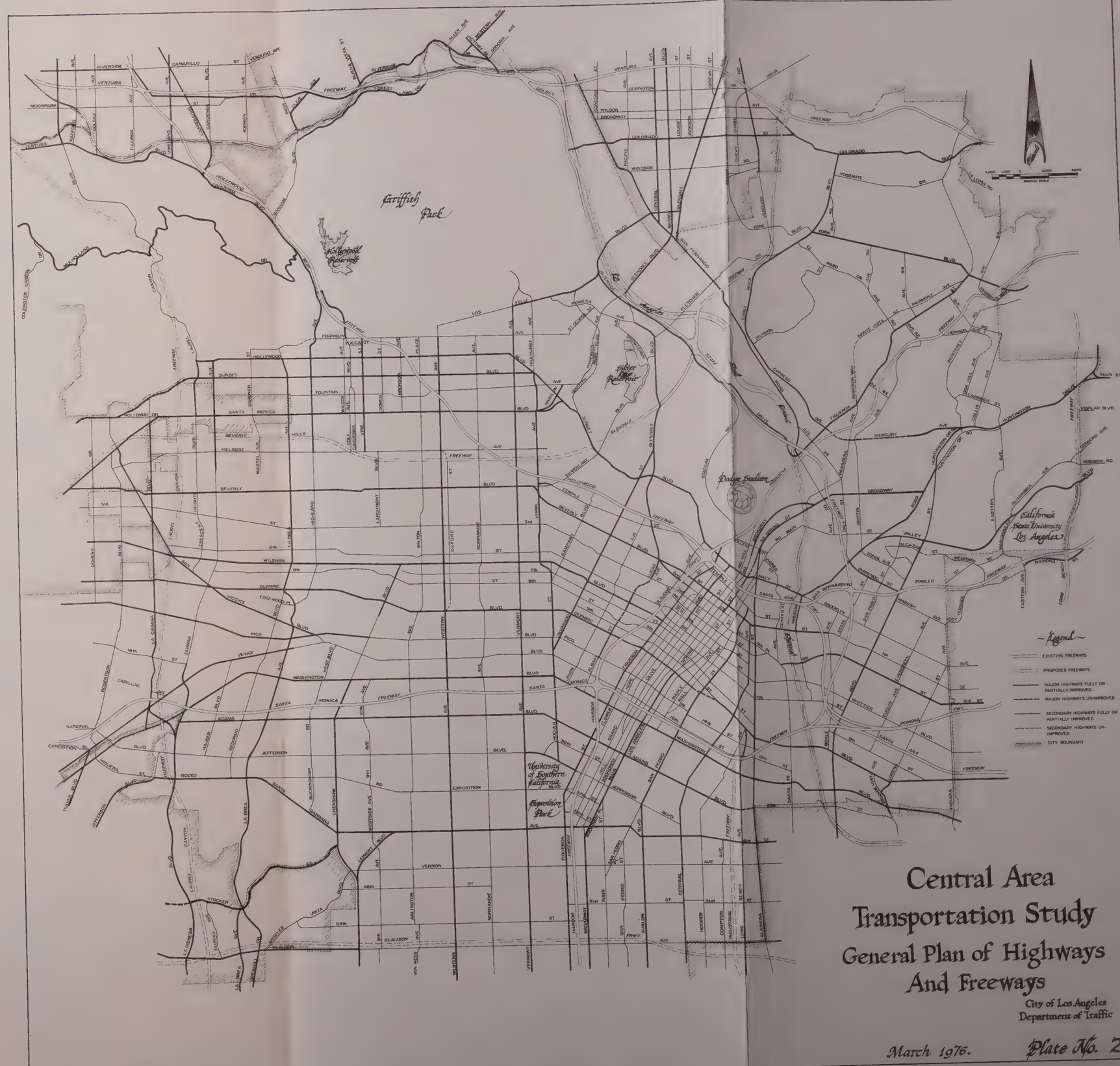
Eleven of the City's thirty-five community plan subareas make up the CATS area, as shown on Plate 3. Each subarea was analyzed to determine existing conditions and specific deficiencies.

CENTRAL AREA TRANSPORTATION STUDY

VICINITY MAP

JUNE 1977.

PLATE No. 1



Central Area Transportation Study

General Plan of Highways And Freeways

City of Los Angeles
Department of Traffic

March 1976.

Plate No. 2.

Griffith Park

Hollywood

Wilshire

Westlake

Northeast Los Angeles

Silver Lake - Echo Park

Central City

Boyle Heights

West Adams - Leimert - Baldwin Hills

South Central Los Angeles

North & East Central City

Southeast Los Angeles

Legend

- EXISTING FREEWAYS
- PROPOSED FREEWAYS
- MAJOR HIGHWAYS FULLY OR PARTIALLY IMPROVED
- MAJOR HIGHWAYS UNIMPROVED
- SECONDARY HIGHWAYS FULLY OR PARTIALLY IMPROVED
- SECONDARY HIGHWAYS UNIMPROVED
- CITY BOUNDARY

1977 COMMUNITY PLAN AREAS

CENTRAL AREA TRANSPORTATION STUDY

City of Los Angeles
Department of Traffic

JULY 1977

Plate No. 3

II.
EXISTING TRAFFIC CONDITIONS

Traffic Volumes

Existing traffic patterns in the study area were determined from automatic and manual traffic counts of vehicular volumes on freeways and major and secondary City highways. Historical trends of traffic volumes throughout the study area were used to adjust the traffic counts for daily and seasonal variations. Freeway traffic volumes were obtained from the California Department of Transportation (Caltrans), and transit patronage and bus volumes were obtained from the Southern California Rapid Transit District (SCRTD). Traffic flow maps (Plates 4 and 5) show average weekday 24-hour traffic volumes for the Central City area and for the remainder of the study area.

A recent study of high-volume surface street intersections within the City revealed 22 locations in 1976 with 70,000 or more vehicles entering per average weekday. Of these 22 locations City-wide, 12 or 55 percent were located within the CATS area. Table 1 shows the 22 highest volume intersections within the City and identifies those locations that are within the study area.

Route Speeds

One method of determining the quality of existing traffic flow on the street network is the route speed survey. The survey procedure utilizes a specially equipped car which uses electronic hardware to record speed, distance, delay, stops and driver comments. The car is driven with traffic on selected streets at a speed which is judged to be representative of the traffic flow.

CENTRAL AREA TRANSPORTATION STUDY

1975

TRAFFIC FLOW MAP

AVERAGE WEEKDAY 24 HOUR VOLUMES

FIGURES IN THOUSANDS

CITY OF LOS ANGELES
DEPARTMENT OF TRAFFIC
G.W. SKILES; ACTING CITY TRAFFIC ENGR.

PLATE NO. 4

Fig C 168. 10/77

CENTRAL AREA
TRANSPORTATION STUDY

CENTRAL CITY INSERT
1975
TRAFFIC FLOW MAP

AVERAGE WEEKDAY
24 HOUR VOLUMES

FIGURES IN THOUSANDS

CITY OF LOS ANGELES
DEPARTMENT OF TRAFFIC
G.W. SKILES, CITY TRAFFIC ENGR

G.G. Criss.
Oct., 1977.

PLATE No. 5

Table 1

1976 High-Volume Surface Street Intersections

Location	1st Street	2nd Street	Total
Wilshire Bl. and Veteran Ave.	85,000	18,000	103,000
Century Bl. and Aviation Bl.	70,000	22,000	92,000
Wilshire Bl. and Westwood Bl.	65,000	25,000	90,000
Wilshire Bl. and Gayley Ave.	71,000	18,000	89,000
Highland Ave. and Sunset Bl.*	45,000	42,000	87,000
Century Bl. and Airport Bl.	70,000	15,000	85,000
Lincoln Bl. and Washington Bl.	50,000	32,000	82,000
Highland Ave. and Franklin Ave.* (north I/S)	71,000	10,000	81,000
Highland Ave. and Franklin Ave.* (south I/S)	63,000	17,000	80,000
Sunset Bl. and La Brea Ave.*	45,000	34,000	79,000
Highland Ave. and Hollywood Bl.*	50,000	28,000	78,000
Sepulveda Bl. and Imperial Hwy.	50,000	28,000	78,000
Sherman Way and Van Nuys Bl.	40,000	37,000	77,000
La Brea Ave. and Rodeo Rd.*	46,000	29,000	75,000
La Cienega Bl. and Olympic Bl.*	40,000	35,000	75,000
Highland Ave. and Camrose Dr.*	67,000	6,000	73,000
La Brea Ave. and Adams Bl.*	52,000	20,000	72,000
Sherman Way and Sepulveda Bl.	42,000	30,000	72,000
Highland Ave. and Odin St.*	65,000	6,000	71,000
La Brea Ave. and Washington Bl.*	54,000	17,000	71,000
Sunset Bl. and Vine St.*	45,000	25,000	70,000
Roscoe Bl. and Sepulveda Bl.	41,000	29,000	70,000

*Intersections within the Central Area Transportation Study area.

In 1970, under a grant from the National Highway Traffic Safety Administration, the Department of Traffic purchased the necessary equipment and inventoried operating speeds and delay on all major streets in the City, including the study area. This study required a substantial manpower and resource commitment, and because of current resource limitations, the complete inventory was not repeated for this study.

However, to determine the correlation of the 1970 data with current operating speeds, the Traffic Department conducted new route speed surveys on 18 representative major street segments throughout the study area. These street segments and their current operating speeds in the midday and PM peak periods are shown in Tables 2 and 3.

A comparison of the current data with the 1970 data shows little change (1-3 mph) in average operating speeds on the sampled streets. Consequently, the 1970 route speed data were used to identify deficient street segments needing further study. The 1970 data may be found in the previous report entitled Central Area Cooperative Transportation Study - Part I.

Identification of Deficient Street Segments

Using the 1970 route speed data, the average travel time was compared with an acceptable or "standard" speed travel time. The amount of travel time in excess of the expected or "standard" travel time was considered to be excess delay.

Standard speeds were determined for each street segment based on the classification of the street (major, secondary, collector), the location of the street (central business district, outlying business district, residential,

Table 2

Average Operating Speeds
Mid-Day Off-Peak Period (11 AM to 1 PM)

Highway	Segment	Direction	Average Operating Speed (MPH)	Change From 1970 Study (MPH)
Wilshire Bl.	Grand Ave.-Western Ave.	W/B	14.4	- 3.0
		E/B	15.4	- 1.2
Wilshire Bl.	Western Ave.-San Vicente Bl.	W/B	17.1	- 2.4
		E/B	16.8	+ 0.4
Olympic Bl.	Figueroa St.-Wilton Pl.	W/B	26.1	+ 1.7
		E/B	25.0	+ 1.3
Olympic Bl.	Wilton Pl.-Robertson Bl.	W/B	26.3	+ 3.3
		E/B	25.2	+ 1.7
Vermont Ave.	Franklin Ave.-1st St.	S/B	18.1	+ 2.1
		N/B	20.0	+ 3.0
Vermont Ave.	1st St.-Adams Bl.	S/B	19.8	+ 1.8
		N/B	20.7	+ 1.0
La Brea Ave.	Hollywood Bl.-Wilshire Bl.	S/B	19.4	- 2.0
		N/B	19.3	- 1.3
La Brea Ave.	Wilshire Bl.-Rodeo Rd.	S/B	20.2	+ 2.7
		N/B	21.6	+ 0.5
Sunset Bl.	Hillhurst Ave.-Gower St.	W/B	17.6	- 4.2
		E/B	21.7	- 0.1
Sunset Bl.	Gower St.-Laurel Canyon Bl.	W/B	17.4	+ 1.8
		E/B	17.2	- 1.1
Santa Monica Bl.	Hoover St.-La Brea Ave.	W/B	17.1	- 2.9
		E/B	17.4	- 3.6
Beverly Bl.	Vermont Ave.-La Cienega Bl.	W/B	22.6	- 0.7
		E/B	24.2	+ 0.4
Figueroa St.	2nd St.-Olympic Bl.	S/B	13.2	+ 2.8
		N/B	19.0	+ 3.8
Figueroa St.	Olympic Bl.-Santa Barbara Ave.	S/B	21.7	- 0.8
		N/B	21.0	- 2.9
Spring St.	Sunset Bl.-9th St.	S/B	18.2	+ 2.3
Main St.	Alameda St.-9th St.	N/B	20.3	+ 2.0
3rd St./4th St.	Indiana St.-Los Angeles St.	W/B	25.1	- 1.8
		E/B	25.2	- 0.1
Santa Barbara Ave.	Central Ave.-Crenshaw Bl.	W/B	26.0	- 0.1
		E/B	28.7	+ 3.4
Broadway	Temple St.-Olympic Bl.	S/B	9.2	- 0.7
		N/B	9.0	- 0.3
Broadway	Olympic Bl.-Santa Barbara Ave.	S/B	22.5	+ 0.5
		N/B	19.9	- 0.2

Table 3

Average Operating Speeds
PM Peak Period (4 PM to 6 PM)

Highway	Segment	Direction	Average Operating Speed (MPH)	Change From 1970 Study (MPH)
Wilshire Bl.	Grand Ave.-Western Ave.	W/B	15.5	- 1.0
		E/B	14.0	- 3.3
Wilshire Bl.	Western Ave.-San Vicente Bl.	W/B	16.9	- 0.4
		E/B	17.7	- 0.3
Olympic Bl.	Figueroa St.-Wilton Pl.	W/B	23.2	+ 1.2
		E/B	23.4	+ 0.5
Olympic Bl.	Wilton Pl.-Robertson Bl.	W/B	24.4	- 0.6
		E/B	23.6	- 1.5
Vermont Ave.	Franklin Ave.-1st St.	S/B	21.4	+ 0.4
		N/B	17.7	- 1.1
Vermont Ave.	1st St.-Adams Bl.	S/B	17.0	- 0.8
		N/B	16.0	- 0.6
La Brea Ave.	Hollywood Bl.-Wilshire Bl.	S/B	19.2	- 3.2
		N/B	17.2	- 1.1
La Brea Ave.	Wilshire Bl.-Rodeo Rd.	S/B	25.4	+ 3.7
		N/B	24.5	+ 2.0
Sunset Bl.	Hillhurst Ave.-Gower St.	W/B	16.9	- 1.8
		E/B	18.8	+ 0.3
Sunset Bl.	Gower St.-Laurel Cyn. Bl.	W/B	16.8	- 2.9
		E/B	16.2	- 1.7
Santa Monica Bl.	Hoover St.-La Brea Ave.	W/B	17.8	+ 0.8
		E/B	18.8	- 1.3
Beverly Bl.	Vermont Ave.-La Cienega Bl.	W/B	22.4	+ 1.2
		E/B	19.9	- 2.0
Figueroa St.	2nd St.-Olympic Bl.	S/B	11.8	+ 1.1
		N/B	7.4	- 0.9
Figueroa St.	Olympic Bl.-Santa Barbara Ave.	S/B	20.6	+ 0.1
		N/B	20.6	- 0.8
Spring St.	Sunset Bl.-9th St.	S/B	17.2	+ 1.6
Main St.	Alameda St.-9th St.	N/B	13.9	+ 0.5
3rd St./4th St.	Indiana St.-Los Angeles St.	W/B	24.7	+ 0.2
		E/B	22.2	+ 0.8
Santa Barbara Ave.	Central Ave.-Crenshaw Bl.	W/B	21.5	- 1.0
		E/B	25.4	+ 2.0
Broadway	Temple St.-Olympic Bl.	S/B	9.7	- 0.8
		N/B	10.6	+ 2.6
Broadway	Olympic Bl.-Santa Barbara Ave.	S/B	18.6	+ 1.3
		N/B	19.1	- 2.7

etc.), and the traffic flow characteristics. One of the major factors influencing traffic flow is traffic signal density. The following is a tablulation of approximate standard speeds for various traffic signal densities:

Number of Signals per Mile	Standard Speed (MPH)
0.0-1.4	30
1.5-5.4	25
5.5-8.0	20

A segment of a route for which there is excess delay can generally be defined as a deficient segment. The travel time survey information reflects the traffic and travel conditions along the route. Low travel speeds result from poor signal progression, insufficient roadway width, congestion, friction, and other conditions which may impair travel.

A study of the 1970 and current route speed data showed concentrations of deficient street segments in the Central City, the Wilshire District and Hollywood. These areas were selected for further study in this report.

Traffic Accidents

Another indication of the quality of the existing traffic system is the traffic accident history. Table 4 lists the intersections within the study area having 1975 accident rates greater than 1.0 accidents per million vehicles entering the intersection. The intersection accident totals include all accidents within the intersection crosswalk lines plus rear-end and sideswipe accidents within 200 feet on the approach to the intersection.

Of the 151 intersections throughout the City having accident rates in 1975 greater than 1.0 accidents per million vehicles, 92 or 61 percent were

within the study area. Twenty-two of these are located within the Central Business District, as shown on Plate 5.

In addition to the CBD, other areas which show concentrations of high-accident rate intersections include:

1. Hollywood area bounded by Santa Monica Boulevard, Franklin Avenue, La Brea Avenue and Vermont Avenue.
2. Soto Street between Whittier Boulevard and Brooklyn Avenue.
3. Vermont Avenue between Adams Boulevard and Olympic Boulevard.
4. Virgil Avenue between 1st Street and Melrose Avenue.

Table 4

Central Area Transportation Study
1975 High Accident Rate Intersections

City-Wide Rank	Location	Intersection Accidents/ Year	Intersection Volume/Day	Accident Rate (Accidents/ Million Vehicles)
3	Georgia St. and 9th St.	18	20,100	2.45
4	Los Angeles St. and Pico Bl.	15	17,200	2.40
6	San Bernardino Fwy. E/B On and State St.	17	20,000	2.33
7	Gardner St. and Hollywood Bl.	16	19,000	2.30
9	Arcadia St. and North Main St.	14	16,900	2.27
10	Olive St. and Pico Bl.	17	21,400	2.18
12	Brooklyn Ave. and Soto St.	30	39,700	2.07
14	Edgemont St. and Fountain Ave.	13	18,000	1.98
15	Alameda St. and 1st St.	25	35,200	1.95
17	Los Feliz Bl. and Vermont Ave.	22	31,500	1.91
18	Melrose Ave. and Virgil Ave.	19	27,500	1.89
21	Broadway and Pico Bl.	15	22,600	1.82
22	Hollywood Bl. and Western Ave.	24	37,000	1.78
27	Hope St. and Pico Bl.	11	18,100	1.66
28	Soto St. and Whittier Bl.	22	37,000	1.63
29	Slauson Ave. and Vermont Ave.	23	39,000	1.62
30	Francisco St. and 8th St.	16	27,100	1.62
32	Normandie Ave. and 12th St.	10	17,200	1.59
34	Venice Bl. and Vermont Ave.	24	42,000	1.57
36	Broadway and 6th St.	19	33,500	1.55
37	Hill St. and 2nd St.	17	30,100	1.54
39	Fairfax Ave. and Wilshire Bl.	28	50,400	1.52
40	Soto St. and 1st St.	18	32,400	1.52
41	Grand Ave. and Pico Bl.	13	23,500	1.52
42	Western Ave. and 54th St.	21	38,200	1.51
43	Adams Bl. and Vermont Ave.	22	40,100	1.50
44	Broadway and Vernon Ave.	22	40,400	1.49
47	Daily St. and North Broadway	21	38,800	1.46
51	Vernon Ave. and Western Ave.	21	39,900	1.44
52	Cahuenga Bl. and Moorpark St.	11	21,000	1.43
57	Brooklyn Ave. and Mott St.	12	23,100	1.42
58	Macy St. and Mission Rd.	19	37,000	1.41
59	Verdugo Rd. and York Bl.	16	31,300	1.40
62	Vermont Ave. and Washington Bl.	23	46,000	1.37
63	Lankershim Bl. and Vineland Ave.	18	36,000	1.37
64	Fairfax Ave. and Santa Monica Fwy.E/B Off	17	34,000	1.37
66	Slauson Ave. and West Bl.	15	30,000	1.37
67	Arlington Ave. and Rodeo Rd.	12	24,000	1.37
69	Clinton St. and Virgil Ave.	11	22,000	1.37
71	Adams Bl. and Maple Ave.	10	20,500	1.34

Table 4 (Cont.)

City-Wide Rank	Location	Intersection Accidents/ Year	Intersection Volume/Day	Accident Rate (Accidents/ Million Vehicles)
74	Soto St. and 4th St.	16	33,300	1.32
75	Silverlake Bl. and Virgil Ave.	16	33,100	1.32
76	Highland Ave. and Odin St.	34	71,100	1.31
79	Santa Monica Bl. and Van Ness Ave.	18	38,800	1.27
80	Figueroa St. and Wilshire Bl.	17	36,600	1.27
81	Hill St. and Pico Bl.	10	21,500	1.27
83	Grand Ave. and Washington Bl.	18	39,000	1.26
85	Figueroa St. and 6th St.	22	48,000	1.25
86	Arlington Ave. and Santa Monica Fwy. W/B On	14	30,700	1.25
87	North Broadway and Pasadena Ave.	10	21,900	1.25
91	Exposition Bl. and Flower St.	11	24,300	1.24
92	Riverside Dr. and Vineland Ave.	12	26,600	1.23
95	Mariposa Ave. and 8th St.	10	22,500	1.22
96	Adams Bl. and Normandie Ave.	16	36,300	1.21
97	Santa Monica Bl. and Western Ave.	29	66,200	1.20
100	Jefferson Bl. and Western Ave.	16	36,900	1.19
101	Edgemont St. and Sunset Bl.	14	32,100	1.19
102	Alvarado St. and Pico Bl.	13	30,000	1.19
103	Wall St. and 7th St.	10	23,000	1.19
104	Jefferson Bl. and La Cienega Bl.	22	52,200	1.16
106	Franklin Ave. and Western Ave.	16	37,800	1.16
107	San Pedro St. and Vernon Ave.	11	25,900	1.16
110	La Brea Ave. and Sunset Bl.	26	62,900	1.13
112	Normandie Ave. and Sunset Bl.	12	29,100	1.13
114	Figueroa St. and 2nd St.	14	34,300	1.12
115	Echo Park Ave. and Sunset Bl.	14	34,200	1.12
116	Rossmore Ave. and 6th St.	12	29,500	1.12
117	Hoover St. and 9th St.	11	27,000	1.12
118	Sunset Bl. and Wilton Pl.	18	44,500	1.11
119	Sunset Bl. and Western Ave.	24	59,600	1.10
120	Vermont Ave. and 54th St.	12	30,000	1.10
121	Virgil Ave. and 1st St.	11	27,500	1.10
122	Union Ave. and 7th St.	10	25,000	1.10
123	Aliso St. and Spring St.	10	24,900	1.10
124	Los Angeles St. and 8th St.	10	24,900	1.10
125	Figueroa St. and 8th St.	14	35,200	1.09
127	Broadway and 7th St.	13	33,000	1.08
128	Olympic Bl. and Vermont Ave.	27	69,000	1.07
129	Alvarado St. and Temple St.	18	46,000	1.07
130	Beverly Bl. and Normandie Ave.	17	43,600	1.07
132	Cherry St. and Pico Bl.	16	41,000	1.07
134	Argyle Ave. and Franklin Ave.	13	33,500	1.06
136	Adams Bl. and Western Ave.	17	44,400	1.05

Table 4 (Cont.)

City-Wide Rank	Location	Intersection Accidents/ Year	Intersection Volume/Day	Accident Rate (Accidents/ Million Vehicles)
137	Hill St. and 5th St.	10	26,000	1.05
139	National Bl. and Venice Bl.	17	44,600	1.04
140	Cahuenga Bl. and Franklin Ave.	16	42,000	1.04
141	Main St. and Slauson Ave.	15	39,700	1.04
142	Figueroa St. and Venice Bl.	11	29,000	1.04
144	Main St. and Washington Bl.	14	37,100	1.03
148	Hill St. and Temple St.	13	34,800	1.02
150	Highland Ave. and Hollywood Bl.	28	76,100	1.01
151	Fountain Ave. and Vermont Ave.	14	37,900	1.01

CENTRAL AREA
TRANSPORTATION STUDY
1975
HIGH FREQUENCY
ACCIDENT RATE LOCATIONS

City of Los Angeles
Department of Traffic

Plate No. 6.

III.
DEMOGRAPHIC CHARACTERISTICS

A comprehensive listing of existing and forecasted data concerning population, housing and employment in each community plan area is shown in Table 5. The sources for this material are: the Department of City Planning, the SCAG-76 Growth Forecast Policy and Wilbur Smith and Associates (for Downtown employment). The population figures include the census undercount and illegal alien totals recently adopted by the City Council. The dwelling unit data are based on census and building permit information, and are factored to reflect future housing needs. Similarly, the employment data have been developed from various business-related studies.

The amalgamation of these data leads to a scenario of future conditions affecting land use and transportation. Computer modeling techniques are then employed to forecast travel trends influenced by the trip production and attraction characteristics of an area. These demographic figures are not absolute, but represent one projection for the future based on a given set of expected land use, population and employment data.

Population

The population of the study area is anticipated to increase only 1 percent from 1975 to 1990. This figure is less than the forecast increase of 5 percent for the City, 7 percent for the County, and 16 percent for the SCAG region because there is little undeveloped land remaining in the study area.

The 1975 data disclosed that 51 percent of the City's 3,342,123 population resided within the study area. The Northeast Los Angeles, South Central Los Angeles, and Wilshire Community plan areas together comprised almost half of the CATS area population. On the other hand,

less than 2 percent of the area's 1,693,201 inhabitants lived in the Central City and North and East Central City areas.

The 1990 projections, which are based on forecasted populations of 3.5 million for the City, 8.1 million for the County, and 12.4 million for the region, indicate continued population concentration in the Northeast, South Central and Wilshire areas. The greatest percentage increase is anticipated in the North and East Central area, where population growth of 2,008 people or 18 percent is predicted. All other community plan areas show increases of 1 to 3 percent with the exception of the Central City area, which is projected to decrease by 8 percent.

Housing

The 1975 housing information indicated that 60 percent of the study area's 567,407 dwelling units were multi-family facilities. Total dwelling units in the area constituted 50 percent of the total within the City. Single-family dwellings were more prevalent within the South Central Los Angeles, Southeast Los Angeles, and Northeast Los Angeles sectors, while the Hollywood and Wilshire areas contained more multiple-family dwelling units.

The 1990 housing figures project decreases in single-family units throughout the entire CATS region. This 3 percent reduction is slightly more than the 2 percent drop anticipated for the City. Both the County and the SCAG region expect increases of 6 and 12 percent, respectively, in single-family units. The Hollywood, Northeast Los Angeles, Wilshire, and South Central areas are each scheduled for decreases of over 1,000 single-family units.

An increase of 15 percent in multi-family dwellings is anticipated in the CATS area by 1990. Almost 10,000 more multiple-family units are forecast for the Northeast Los Angeles area, and the Central City area is slated for a 68 percent increase. The City, County, and SCAG region figures show increases ranging from 20 percent to 33 percent, indicating a continued trend toward utilization of multi-family units.

Employment

Total employment in the CATS area is anticipated to rise from 820,393 jobs in 1975 to 986,600 jobs in 1990, an increase of 20 percent. Retail employment is expected to increase 51 percent during the same time span. Both these increases are less than the figure for the overall City, but exceed County and SCAG region projections.

According to the base-year data, the Hollywood and Wilshire areas contained the largest number of retail employees, and continued increases are forecast for these areas. Total employment in the Central City area exceeded the totals for all other parts of the study area. Also, the projected figure of 237,125 for the Central City, plus the future employment totals in the Hollywood and Wilshire areas, are scheduled to provide 55 percent of the employment in the CATS area by 1990.

Total employment is anticipated to increase in 10 of the 11 community plan areas. Only the Echo Park/Silverlake district, with a projected decrease of 16 percent, shows a reduction in total employment.

Table 5

Central Area Transportation Study
Demographic Characteristics

Community Plan Area		Population	Single-Family Dwelling Units	Multiple-Family Dwelling Units	Retail Employment	Total Employment
Hollywood	1975	169,970	23,257	66,226	12,720	87,563
	1990	174,700	21,564	73,257.	23,520	126,570
	% Change	4,730 (+3%)	-1,693 (-7%)	7,031 (+11%)	10,800 (+85%)	39,007 (+44%)
Northeast Los Angeles	1975	292,270	44,582	20,121	9,563	66,359
	1990	298,300	43,470	30,005	12,125	77,700
	% Change	6,030 (+2%)	-1,112 (-2%)	9,884 (+49%)	2,560 (+27%)	11,341 (+17%)
Wilshire	1975	214,260	20,369	85,299	19,255	126,378
	1990	217,300	18,967	90,325	32,450	175,600
	% Change	3,040 (+1%)	-1,402 (-7%)	5,026 (+6%)	13,195 (+68%)	49,222 (+39%)
Silver Lake-Echo Park	1975	95,290	13,808	14,569	2,305	17,045
	1990	96,900	13,577	19,317	3,135	14,230
	% Change	1,610 (+2%)	-231 (-2%)	4,748 (+33%)	830 (+36%)	-2,815 (-16%)
Westlake	1975	93,581	4,318	33,272	5,001	63,206
	1990	95,000	3,855	35,918	7,600	74,750
	% Change	1,419 (+2%)	-463 (-11%)	2,646 (+8%)	2,599 (+52%)	11,544 (+18%)
Central City	1975	19,062	563	8,772	9,385	214,920
	1990	17,600	300	14,700	14,270	237,125
	% Change	-1,462 (-8%)	-263 (-47%)	5,928 (+68%)	4,885 (+52%)	21,045 (+10%)
North & East Central City	1975	11,292	384	1,702	3,565	48,869
	1990	13,300	209	2,413	3,450	54,000
	% Change	2,008 (+18%)	-175 (-46%)	711 (+42%)	-115 (-3%)	5,131 (+10%)
Boyle Heights	1975	187,386	12,114	9,801	6,884	38,279
	1990	189,400	11,804	12,275	8,300	43,100
	% Change	2,014 (+1%)	-310 (-3%)	2,474 (+25%)	1,416 (+20%)	4,821 (+13%)
West Adams	1975	167,173	29,589	34,983	8,421	40,848
	1990	170,500	29,447	40,170	13,325	47,800
	% Change	3,327 (+2%)	-142 (-0.5%)	5,187 (+15%)	4,905 (+58%)	6,952 (+17%)

Table 5 (Continued)

Community Plan Area		Population	Single-Family Dwelling Units	Multiple-Family Dwelling Units	Retail Employment	Total Employment
South Central Los Angeles	1975	245,957	42,747	37,411	8,222	51,760
	1990	247,000	41,362	45,052	13,000	59,200
	% Change	1,043 (+1%)	-1,385 (-3%)	7,641 (+20%)	4,778 (+58%)	7,440 (+14%)
Southeast Los Angeles	1975	196,960	40,211	22,949	7,522	65,166
	1990	195,100	39,828	23,887	9,210	76,490
	% Change	-1,860 (-1%)	-383 (-1%)	938 (+4%)	1,688 (+22%)	11,324 (+17%)
CATS Study Area TOTAL	1975	1,693,201	231,942	335,465	92,845	820,393
	1990	1,715,100	224,383	387,319	140,385	986,600
	% Change	21,899 (+1%)	-7,559 (-3%)	51,854 (+15%)	47,540 (+51%)	165,007 (+20)
City of Los Angeles TOTAL	1975	3,342,123	565,531	510,150	171,211	1,366,359
	1990	3,503,400	554,983	689,519	282,300	1,730,400
	% Change	161,277 (+5%)	-10,548 (-2%)	119,369 (+21%)	111,089 (+65%)	362,841 (+27%)
County of Los Angeles TOTAL	1975	7,544,121	1,529,448	1,140,234	455,728	3,185,281
	1990	8,079,100	1,618,883	1,365,919	598,300	3,609,600
	% Change	534,979 (+7%)	89,435 (+6%)	225,685 (+20%)	142,572 (+31%)	423,119 (+13%)
SCAG TOTAL	1975	10,621,996	2,294,484	1,443,740	644,089	4,244,856
	1990	12,355,400	2,564,683	1,926,319	909,100	5,266,600
	% Change	1,733,404 (+16%)	270,199 (+12%)	482,579 (+33%)	265,011 (+41%)	1,020,544 (+24%)

IV.
TRAFFIC PROJECTIONS

Traffic projections are necessary to identify circulation problems associated with the planned land use development. There are many areas within the City where the anticipated land use will generate traffic demands which exceed the capabilities of the existing transportation system. Through the use of computerized travel projection models, it is possible to simulate future travel patterns and construct the 1990 traffic demand flow maps (Plates 7 and 8) in this report.

Methodology

The travel projection procedure used in this study is very similar to the traditional methodology used by LARTS in modeling regional trip desires, as shown in Figure 1. Land use data, described in the previous chapter, are input to a trip-generation model to estimate produced and attracted trips. A gravity model is used to distribute these trips spatially as an estimated person-trip travel desire pattern. A mode-choice procedure assigns the trips to automobiles or transit vehicles and the traffic assignment model simulates the vehicle desires on the highway network.

The computer programs to accomplish the above tasks are installed on the City's computer in two distinct packages called PLANPAC and UTPS. These programs, developed and distributed by the Federal Highway (FHWA) and Urban Mass Transit (UMTA) Administrations, are up-to-date versions of travel demand models used by most urban areas in the nation.

Rather than relying on regional travel forecasts made for SCAG by the LARTS group of Caltrans, the City has elected to make independent traffic projections as outlined above to achieve better accuracy for subregional planning. Forecasts made at the subregional level of detail can be more

TRAFFIC PROJECTION PROCEDURE

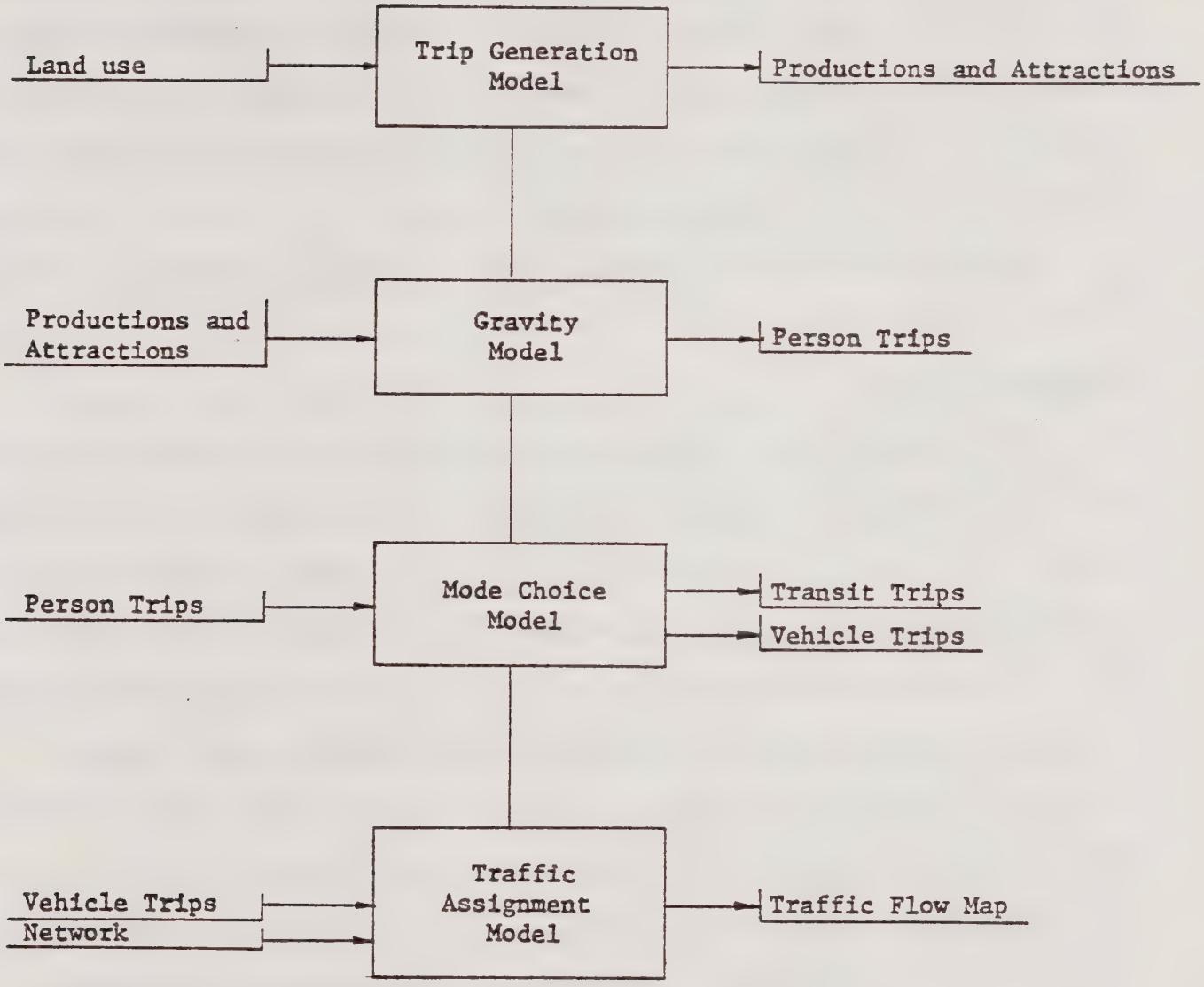


Figure 1

accurate for the following reasons: 1) Refined trip-generation formulas are used in the City's model. 2) Networks constructed by City staff cover less area; therefore, they include all surface arterials, most of which are left out of LARTS' regional networks. 3) Utilization of smaller networks facilitates implementation of advanced traffic assignment techniques which would be cost prohibitive on the larger regional network.

In applying the travel projection models, a number of assumptions were made in the form of data inputs. These assumptions are detailed below.

Demographic Data

As described in the previous Chapter, the traffic projections from this study are based upon a planned City of Los Angeles population of 3.5 million people. This projection includes adjustments to previous population forecasts to account for illegal aliens concentrated in the Central Area. The population and corresponding housing data were allocated to census tracts within the CATS area by City staff. Inside the Central Business District, the demographic data were disaggregated further to zones consisting of one to four City blocks so that every CBD street could be included in the projection.

Demographic data outside of the CATS area were included to estimate the regional share of travel to, from and through the study area. For zones inside the City of Los Angeles, the projected population and housing made by City Planning staff (3.5 million people) were used. Housing and population data for areas outside of Los Angeles were obtained from the SCAG-76 projections. All demographic data outside the study area were detailed according to the 76 Community Plan Analysis Zones (CPAZ's).

Employment data were obtained from various sources and allocated to the same zonal system. Inside the City of Los Angeles, a 1990 projection made by City Planning Department in October, 1972, was utilized, except for the CBD employment where a more recent projection made for the analysis of the Community Redevelopment Agency's proposed CBD circulation system, was available. Outside of Los Angeles, employment estimates from the SCAG-76 projection were allocated to the CPAZ zone system.

Network

A network description of the study area was coded and keypunched for computer representation of the CATS highway system. The network contains data for all major and secondary highways and freeways in the study area. Local and collector streets are represented by links connecting the zonal centroids to the remainder of the network. The network contains over 10,000 links which connect 542 zones.

The CATS network is much more detailed than the LARTS regional network. In addition to inclusion of more surface arterials, the network represents one-way streets in detail and includes freeway on/off ramps. Further, because the CATS network is smaller than the LARTS network (542 zones as compared to 1,325 LARTS zones), roadway capacities for each of the links have been coded for input to the capacity restraint assignment model. In the UTPS system, capacities are indicated by specifying number of lanes, link type and area type. For freeways the actual number of lanes were coded into the network; whereas on arterial streets ultimate street widths were used as follows: major and divided major highways - three lanes each direction; secondary highways - two lanes each direction; centroid connectors - nine lanes each direction.

Travel speeds for each of the links were coded according to assumed free flow speeds for each facility type. These speeds are used only for the first iteration of traffic assignment. The subsequent iterations automatically reduce the speeds according to the simulated congestion and reassign the traffic to alternate facilities to balance the flows.

To simulate regional travel demands, the network establishes connectivity to the remainder of the SCAG region by incorporation of a sketch plan network previously developed for the CPAZ system. The CPAZ network consists solely of freeways and regional surface arterials.

Trip Generation

City of Los Angeles trip-generation rates were used in the modeling procedure. The rates were developed statistically from LARTS Travel Survey data for Los Angeles County residents and were restricted in algebraic form to be independent of zone size. Application of the rates to the base-year data yielded an average trip-making rate of 3.1 trips per person.

Trip Distribution

A gravity model developed by the FHWA was utilized to estimate the distribution of trips. Friction factors input to the model represent the primary calibration item. These were constructed from LARTS travel survey data and represent subregional trip length frequencies in Los Angeles County instead of the regional averages utilized by LARTS.

Mode Choice

Mode choice and auto occupancy were not modeled in this particular study. Instead, the existing mass transit ridership and vehicle occupancy factors were estimated from LARTS data and incorporated as fixed percentages to the destination communities as shown in Table 6. Thus, Plates 6 and 7 represent

Table 6

Vehicle Occupancy and Transit Ridership

Community of Attraction	Vehicle Occupancy	Transit Ridership
Hollywood	1.41	6.22%
NE Los Angeles	1.42	4.15
Wilshire	1.40	8.03
Silverlake-Echo Park	1.44	4.77
Westlake	1.36	14.41
Central City	1.27	22.27
N&E Central City	1.34	8.16
Boyle Heights	1.43	4.89
W. Adams-Leimert Park	1.44	3.87
South Central	1.44	5.06
S.E. Central	1.42	5.27

anticipated traffic demands if significant changes are not realized in transit utilization or in carpooling.

Traffic Assignment

The UTPS Traffic assignment Model, UROAD, was used for estimation of traffic loads on the highway links. The assignment procedure incorporated both multi-path and capacity-restraint features of UROAD to develop balanced flow estimates. Parameters used in the multipath option were calibrated in previous subregional studies by the Department of Traffic.

Calibration

The entire travel estimation procedure was applied to base-year (1975) data to make a final calibration of the CATS network. Traffic counts from eight screenlines throughout the study area were used to compare actual traffic counts to estimates of the model. Correction factors were developed and applied to the base period estimate and the 1990 projections.

Screenline Volumes

Table 7 shows the existing and projected 24-hour volumes for eight screenlines within the study area. This comparison shows the lowest growth rate in the South Central area and across the westerly boundary of the study area. The highest growth rates are projected in the Wilshire District and crossing the Santa Monica Mountains north of Mulholland Drive.

Table 7

Comparison of 1975 and 1990 Volumes
For Selected Screenlines

Screenline No.*	Description	1975 24-hour Vol. (Thousands)	1990 24-hour Vol. (Thousands)	Growth Percent	Annual Rate of Growth
1	North of Mulholland Dr. between Coldwater Cyn. Dr. & Golden State Fwy.	425.3	522.9	22.9	1.39
15	South of Beverly Blvd. between Robertson Blvd. & Virgil Ave.	347.5	425.3	22.4	1.36
6	North of Santa Monica Fwy. between Robertson Blvd. & Santa Fe Ave.	861.9	1037.7	20.4	1.25
3	North of Slauson Ave. between Angeles Vista Blvd. & Alameda St.	449.6	521.7	16.0	1.00
11	East of La Cienega Blvd. between Melrose Ave. & Rodeo Road	517.8	597.1	15.3	.95
8	East of Western Ave. between Los Feliz Blvd. & Slauson Ave.	878.2	1082.6	23.3	1.41
2	East of L. A. River between Ventura Fwy. & Washington Blvd.	1034.9	1234.7	19.3	1.19
12	Eastern L. A. City Boundary between Ventura Fwy. & Valley Blvd.	262.1	305.6	16.6	1.03

*The screenline numbers coincide with the numbering system for the 15 screenline locations where annual counts are made. Annual screenline counts are reported in "Summary of Volume Counts along 15 Screenline locations throughout the City of Los Angeles."

NOTE

1- *Traffic volumes are based on projected high-level 1990 Los Angeles City population of 3.5 million, County population of 8.08 million and SCAG region population of 12.4 million.*

2.- *Distribution of future volumes assumed no major improvements in the surface street or freeway system and no major increase in transit ridership.*

CENTRAL AREA TRANSPORTATION STUDY

1990

TRAFFIC FLOW MAP

AVERAGE WEEKDAY 24 HOUR VOLUMES

FIGURES IN THOUSANDS

CITY OF LOS ANGELES
DEPARTMENT OF TRAFFIC
G W SKILES, CITY TRAFFIC ENGR

OCTOBER 1977.

PLATE NO 7

GJS CR 55

CENTRAL AREA
TRANSPORTATION STUDY

CENTRAL CITY INSERT
1990
TRAFFIC FLOW MAP

AVERAGE WEEKDAY
24 HOUR VOLUMES

FIGURES IN THOUSANDS

NOTE

1.– *Traffic volumes are based on projected high-level 1990 Los Angeles City population of 3.5 million, County population of 8.08 million and SCAG region population of 12.4 million.*

2.– *Distribution of future volumes assumed no major improvements in the surface street or freeway system and no major increase in transit ridership.*

CITY OF LOS ANGELES
DEPARTMENT OF TRAFFIC
G.W. SKILES, CITY TRAFFIC ENGR

October 1977
G.G. Criss

PLATE No. 8

V.
ANALYSIS OF EXISTING AND FUTURE TRAFFIC CONDITIONS FOR SELECTED SUBAREAS

A review of existing traffic volumes, route speeds and traffic accident data and projected demographic and traffic volume data identified four subareas of the study area which warranted further analysis. The Central Business District was selected because of the concentration of employment, traffic volumes, deficient speed segments and traffic accidents and because of the general level of congestion predicted for the future, if no significant diversion to transit occurs.

The Wilshire District contains the only major transportation corridor not presently served directly by a freeway. The area has the greatest concentration of multiple-family dwelling units and retail employment and is characterized by high traffic volumes, congestion and low route speeds. Because of the concentration of activity and projected growth, the District was selected for further study.

The Hollywood area has several arterial streets which carry very high volumes of traffic and have deficient operating speeds. The easterly portion also has a significant number of high-frequency accident rate locations which merit further analysis.

Finally, the decision on whether or not to complete the Long Beach Freeway (Route 7) between Valley Boulevard and the Route 134/210 Interchange will impact future traffic conditions in the El Sereno and Monterey Hills areas of the City. An analysis was made of future traffic conditions with and without the freeway extension to better document the consequences of deleting this project.

It should be noted that the concentration of high-accident rate locations on Soto Street and at other locations will be studied as part of the Department's Traffic Safety Project entitled City-Wide Accident Reduction Effort (CARE). Also, the 1970 route speed data identified several deficient street segments in the South Central Los Angeles area. Traffic conditions in this area are being evaluated as part of the current development of the South Central and Southeast Los Angeles community plans.

CENTRAL BUSINESS DISTRICT

Existing Conditions

Despite the wide dispersion of population and development which characterizes the Los Angeles area, the Central Business District (CBD) remains the region's center of employment, commerce and trip-making activity. The CBD is encircled by freeways which extend radially outward to link the many activity centers and residential communities which make up the remainder of the City. These freeways, along with the well-developed network of surface streets and an expanding bus system, provide the majority of the transportation service to and from the CBD.

Most recent additions to the transportation system include an 11-mile bus/carpool "busway" on separate right-of-way between El Monte and Downtown and a minibus circulation system within the CBD. A high-occupancy vehicle, peak period exclusive lane was also provided on the Santa Monica Freeway for a portion of 1976. This "Diamond Lane" project was discontinued because of public opposition and inadequate environmental impact assessment prior to implementation of the project. Future proposals call for improved utilization of existing transportation facilities, an automated guideway transit (people mover) system between the Convention Center and Union Station, an expanded bus system including exclusive freeway bus lanes and, possibly, a mass transit line through the Wilshire Corridor to Downtown.

Travel Trends

The concentration of trip-making activity in the Downtown area has prompted considerable study of existing and future traffic and transit

conditions. In May, 1976, the Department of Traffic conducted its biennial cordon count of Downtown Los Angeles. The cordoned study area is bounded by Temple Street, Los Angeles Street, Pico Boulevard and Figueroa Street and encompasses slightly more than one square mile. The study included automatic machine counts and manual counts of vehicle volume, type and occupancy, and numbers of pedestrians entering and leaving the CBD between 6 AM and 10 PM. Transit bus and passenger data were provided by the Southern California Rapid Transit District (SCRTD).

During the 16-hour study period, a total of 633,400 vehicles crossed the cordon boundaries at the 95 counting stations. This represented an increase of 30,500 vehicles (4.8 percent) over the total recorded in 1974. Plate 9 shows the 16-hour inbound and outbound vehicular volume totals at the count stations.

A total of 1,235,850 persons entered and left the study area during the same period. This represented an increase of 52,800 persons (4.3 percent) over 1974 counts. Of the total persons entering Downtown during the 16-hour period, 64 percent arrived in automobiles, 26 percent in transit vehicles, 4 percent in commercial vehicles and the remainder, 6 percent, entered on foot.

Vehicular Volume Trends

A review of past cordon count data shows that the volume of vehicular trips across the cordon boundaries increased steadily from 1967 to 1974, when a 4 percent decline in vehicular volume was recorded. Many factors influenced the decline, the most apparent of which were: (1) implementation on April 1, 1974, of the 25-cent Flat Fare Program for transit service in

Downtown Cordon Count

MAY 1976

TOTAL VEHICLES 6:00 A.M. TO 10:00 P.M.

INBOUND 324,970
OUTBOUND 308,445

CITY OF LOS ANGELES
DEPARTMENT OF TRAFFIC
S.S. (Sam) Taylor, CITY TRAFFIC ENGINEER

PICO BLVD. 9282 7092
TEHRAN ST. 103 199
NAGOYA ST. 1304 274
ELEVENTH ST. 2852 7980
OLYMPIC BLVD. 12070 14950
NINTH ST. 21079
EIGHTH PL. 545 665
EIGHTH ST. 17630
SEVENTH PL. 253 369
SEVENTH ST. 6113 7577
WILSHIRE BLVD. 11335 7801
SIXTH ST. 28247
FIFTH ST. 25290
LOWER FOURTH ST. 6399
FOURTH ST. VIADUCT 14127
FREEWAY RAMP 1768
THIRD ST. 18473
SECOND ST. 9622 4663
FIRST ST. 7698 7686
DIAMOND ST. 986 1072
TEMPLE ST. 6641 5223

FIGUEROA ST. 8750 8892
FLOWER ST. 4401 4935
HOPE ST. 3034 2472
GRAND AVE. 4945 5654
MARGO ST. 401 214
OLIVE ST. 2781 2261
HILL ST. 4777 4463
BROADWAY 5020 5807
MAIN ST. 5750 7108
LOS ANGELES ST. 3134 4991

7372 10229 FIGUEROA ST.
5141 4743 FREEWAY RAMPS
5686
9062 11892 GRAND AVE.
8569 6934 HILL ST.
8571 8695 BROADWAY
15105 975 SPRING ST.
14776 MAIN ST.
9798 9588 LOS ANGELES ST.

PICO BLVD. 3042 3990
TWELFTH ST. 7425
ELEVENTH ST. 5486
OLYMPIC BLVD. 4132 4452
NINTH ST. 9992
EIGHTH ST. 11547
SEVENTH ST. 7066 7947
SIXTH ST. 11481
FIFTH ST. 7924
WINSTON ST. 447 351
FOURTH ST. 9027
BOYD ST. 419 366
THIRD ST. 10656
SECOND ST. 3673 2764
FIRST ST. 8178 8418
TEMPLE ST. 4851 5487

500 0 500 1000
MAP SCALE IN FEET

Downtown Cordon Count
VEHICULAR VOLUME
Entering and Leaving Downtown
16 Hours (6 A.M.–10 P.M.)

PLATE 9

Los Angeles County, (2) increased patronage of the San Bernardino Freeway Express Busway route, and (3) effects of the energy crisis as it influenced prices and availability of gasoline and public awareness of their travel habits.

With an easing of the gasoline shortage, cordon area vehicular volumes increased 4.8 percent in 1976 over the 1974 level and surpassed the high level recorded in 1972. Vehicular volumes entering Downtown are now at the highest level since the comprehensive cordon count program was begun in 1963.

Accumulation of Vehicles

The relative accumulation of vehicles in the Downtown area is viewed as an indication of congestion and, more recently, has been of interest in measuring progress toward reduction of concentrations of air and noise pollution. In 1976, the peak accumulation at 2 PM in the CBD consisted of approximately 65,200 vehicles and 152,100 persons.

A review of past study data reveals that the peak accumulation of automobiles remained relatively stable between 1967 and 1970, 57,470 in 1967 versus 57,650 in 1970. According to a parking inventory study report[1], there was a supply of 47,000 off-street parking spaces in 1970 within the cordon area, excluding the blocks between Temple Street and First Street.

Subsequent to the 1972 cordon count, five offices or multi-purpose complexes have been completed within the core area westerly of Grand Avenue. Parking facilities for these complexes resulted in a net increase of over 5,500 off-street parking spaces on the sites involved. This corresponds generally to the increase of over 6,000 automobiles accumulated within the cordon area in 1976 over 1972 (59,730 to 53,650).

---

[1]"Los Angeles Central City, Off-Street Parking Space Inventory," December, 1970, Associated Parking Consultants.

Passenger Mode Trends

The declining trend of transit vehicles crossing the cordon boundaries since 1969 was reversed in 1974 due primarily to the implementation of the 25-cent Flat Fare Program, increased patronage on the San Bernardino Freeway Express Busway route, and general improvements in transit service. Although the number of transit passengers in 1976 increased over the 1974 volumes, the percentage of total passengers remained the same, as shown in Table 8.

Approximately 29 percent of the total cordon passenger trips during the peak 13-hour period between 6 AM and 7 PM were made by transit. For the other primary mode, automobile passengers, the increase in passenger volumes in 1976 over 1974 resulted in this mode accommodating a slightly greater proportion of the cordon passenger volumes.

Passenger Vehicle Occupancy

Passenger vehicle occupancy for vehicles entering the Downtown area during the 16-hour study period has increased steadily since 1972 as shown in Table 9. The increase in vehicle occupancy in 1974 was due primarily to the gasoline crisis which reached its most critical stage about two months prior to the time the cordon study was conducted that year. The continued increase in vehicle occupancy in 1976 may be attributed to factors such as public awareness of the energy shortage, increased cost of gasoline, and public/private car- and vanpool programs, such as Commuter Computer which publicizes carpooling advantages and provides free computerized matching services.

Table 8

Downtown Cordon Area Passenger Mode Trends

Passenger Volumes Crossing Cordon Boundaries*				
Year	Auto Passengers	Comm. Veh. Passengers	Transit Passengers	Total Passengers
1924[1]	393,322	74,252	741,124	1,208,698
1941[2]	715,057	74,724	501,503	1,291,284
1957[3]	717,591	70,650	394,171	1,182,412
1963[3]	648,414	60,416	267,033	975,863
1972[3]	691,198	56,738	238,880	986,816
1974[3]	657,874	53,994	290,010	1,001,878
1976[3]	710,960	49,187	308,730	1,068,877

Proportional Rates by Passenger Mode				
Year	Auto Passengers	Comm. Veh. Passengers	Transit Passengers	Total Passengers
1924	32.5%	6.2%	61.3%	100%
1941	55.4	5.8	38.8	100
1957	60.7	6.0	33.3	100
1963	66.4	6.2	27.4	100
1972	70.7	5.8	24.2	100
1974	65.7	5.4	28.9	100
1976	66.5	4.6	28.9	100

*13 Hours - 6 AM to 7 PM

Sources:

[1]Report on a Comprehensive Rapid Transit Plan for the City and County of Los Angeles, Kelker, De Leuw and Company, 1925.

[2]Los Angeles County Regional Planning Commission.

[3]Los Angeles City, Department of Traffic.

Table 9

Average Automobile Occupancy
Entering the CBD
6 AM to 10 PM

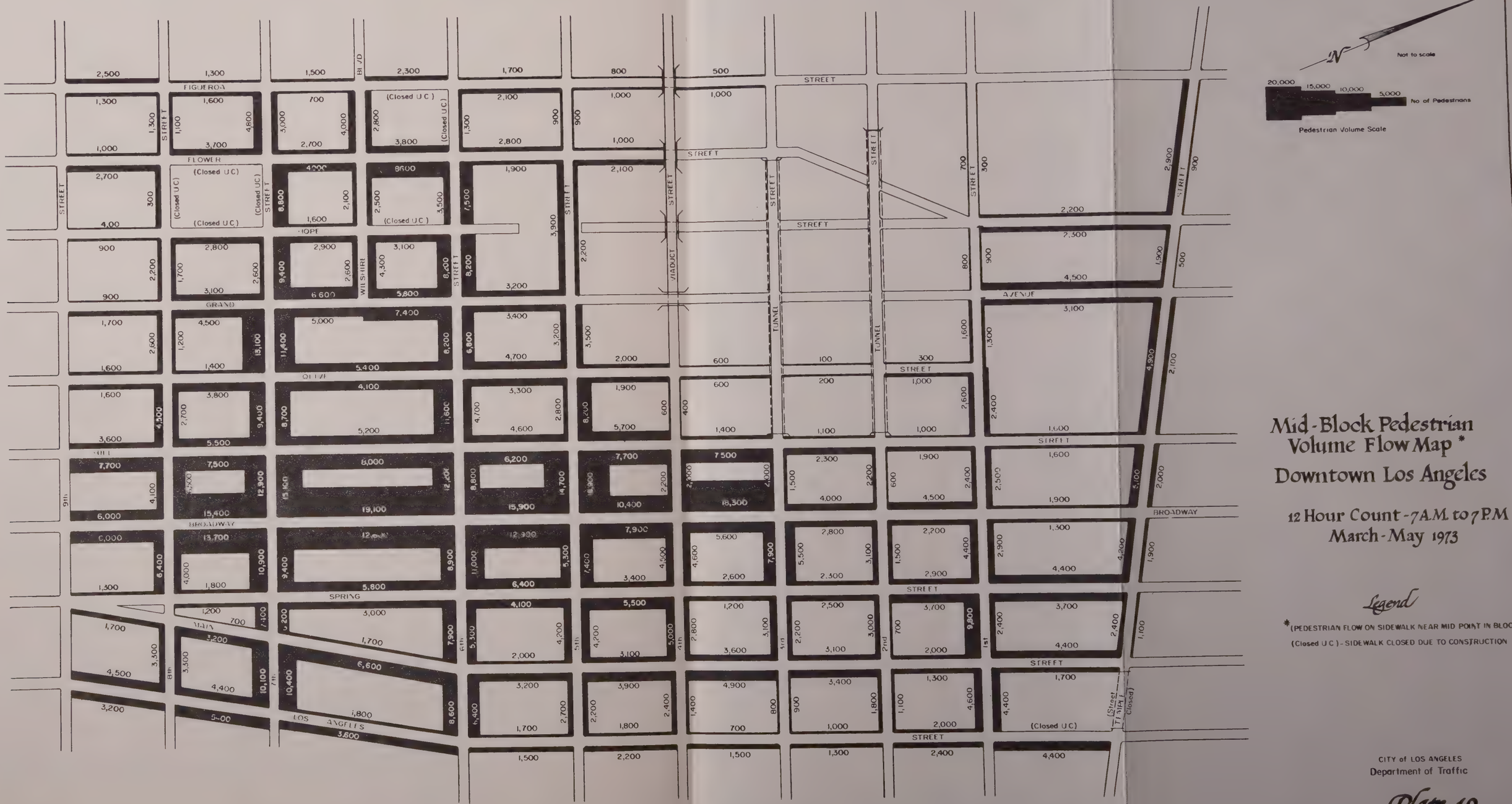
Year	Average Occupancy
1972	1.36
1974	1.37
1976	1.38

Pedestrian Volumes

In 1973, the Department of Traffic made a comprehensive inventory of pedestrian volumes in the Downtown area. Plate 10 shows the volumes recorded at midblock locations for the 12-hour period between 7 AM and 7 PM. The heaviest pedestrian volumes were recorded on Broadway between 3rd Street and 8th Street and on 7th Street between Los Angeles Street and Grand Avenue.

In 1961, a similar pedestrian study was made by the Department encompassing generally the core area between 4th Street and 8th Street. The counts for this study were conducted for the 6-hour period between 11 AM to 2 PM and 3 to 6 PM. The field data were collected during the months from February through April, similar to the time period of the 1973 study.

A comparison was made of volume data from the 1973 counts for the same 6-hour period at the locations studied in 1961. The locations included counts on the following four streets: 6th Street, 7th Street, Hill Street and Broadway. These data reveal that the 6-hour midblock pedestrian volume has decreased an average of 30 percent between 1961 and 1973. Pedestrian volumes decreased in greater proportion on the north-south streets (29 percent on Broadway and 47 percent on Hill Street) than on the east-west streets (25 percent on 6th Street and 23 percent on 7th Street).



Mid-Block Pedestrian Volume Flow Map * Downtown Los Angeles

12 Hour Count - 7 A.M. to 7 P.M.
March - May 1973

Legend

*(PEDESTRIAN FLOW ON SIDEWALK NEAR MID POINT IN BLOCK)

(Closed U C) - SIDEWALK CLOSED DUE TO CONSTRUCTION

CITY of LOS ANGELES
Department of Traffic

Plate 10

Traffic Controls

Nearly every intersection within the CBD is controlled by traffic signals, and most street segments have peak period or all-day parking/stopping prohibitions. The signals are interconnected as part of the Downtown Traffic Signal System, and most operate pretimed with three separate timing programs (dials) provided according to the time of day. Traffic Control Officers from the Police Department assist with traffic control during the peak periods at critical locations, and a concerted effort is made to quickly remove illegally parked cars.

Several street segments in the CBD have been widened in the past years, and others, such as Spring Street-Main Street and 11th Street-12th Street, have been converted to one-way operation to accommodate increased traffic volumes. The conversion of Spring Street-Main Street resulted in a 26 percent increase in overall capacity and a 2-6 MPH increase in average speeds.

Other street pairs, such as Hill Street-Olive Street, have been considered for conversion to one-way couplets. However, the one-way operation of the Hill Street-Olive Street couplet would require construction of a northerly transition roadway and resolution of the problem of access to Pershing Square Garage.

Transit Service

City-wide bus transit service has been expanded and improved since 1972 with the help of local, State and Federal subsidies. Local and express bus service to the CBD has been increased resulting in a 29 percent increase in ridership. Peak-hour directional bus volumes have reached a maximum of 156 buses per hour northbound on Hill Street at 5th Street and 160 buses per hour in the Spring Street contraflow lane north of 1st Street.

The San Bernardino Freeway Express Busway which serves Downtown enjoyed a steady increase in bus ridership up to 18,000 passengers per day by May, 1977. The entire length of the busway was opened in June, 1977, to carpools (3 or more passengers) between 6 and 10 AM and 3 and 7 PM and currently carries 2,000 automobiles in those six hours.

The minibus circulation system which also serves Downtown has in the past carried as many as 11,000 passengers per day at a fare of 10 cents. However, increases in the fare to 25 cents and reductions in service due to increased operating costs caused ridership to drop to approximately 4,700 passengers per day in May, 1977.

Future Conditions and Recommendations

Traffic projections based on a future City population of 3.5 million, assuming no significant shift to transit will occur, indicate that vehicular volumes will increase in Bunker Hill by approximately 20%, and in the Civic Center by 14 to 19%. The remainder of the CBD traffic volumes will grow 18 to 20% by 1990.

If traffic volumes increase as projected without a significant change in auto occupancy or transit ridership, outbound vehicular volumes crossing the north and west boundaries of the CBD will approach or exceed capacity* by 1990. Several alternatives have been proposed to reduce future growth of vehicular volumes and to reduce congestion within the CBD. These Transportation Systems Management (TSM) techniques include:

1. Traffic operational improvements
2. Measures to increase vehicle occupancy
3. Expanded bus service and preferential treatment for buses and high-occupancy vehicles.

*In this chapter "capacity" is determined at Level of Service D, where traffic flow is approaching unstable conditions. Drivers have little freedom to maneuver, and comfort and convenience are low, but can be tolerated for short periods of time.

4. Auto intercepts with fixed guideway (people mover) or expanded minibus circulation/distribution system.

5. Parking management.

6. Diversion of through traffic.

Traffic Operational Improvements

The Traffic Department is studying or planning several operational modifications for the CBD. The street lighting portion of the Downtown Unit II traffic signal system improvement is being revised by the Bureau of Street Lighting, and construction is now scheduled to begin in mid-1978. This $1.1 million project will upgrade traffic signal indications, street lighting, and interconnect at 71 Downtown intersections. The recently completed Downtown Unit I project similarly upgraded a total of 48 other locations along Spring Street, Main Street, Pico Boulevard, Aliso Street and Arcadia Street.

As previously discussed, 22 of the City's 151 high accident rate locations were concentrated in the CBD in 1975. The timely completion of the Downtown Unit II improvement is recommended to increase safety.

The Department has completed a study which verified the feasibility of applying computer control to the operation of traffic signals within the CBD. A computer-based traffic signal control system would provide traffic surveillance capabilities useful for planning, evaluating system performance, and more effective response to equipment failures. It is recommended that the Department proceed with the design and installation of a computer-based traffic surveillance and control system.

Nearly all major streets in Downtown are presently posted with peak-period (7 to 9 AM and 3:30 to 6 PM) stopping prohibitions. However, as

determined from field observations and traffic counts, traffic volumes in the core area exceed the capacity of certain street segments between 11 AM and 3 PM. Consideration should be given to expanding the hours of the stopping prohibitions to alleviate midday congestion at critical locations.

The Traffic Department is currently working with the Police Department to determine more effective means of signing and enforcing regulations governing commercial loading in the CBD. The movement of goods is a critical element in the economic stability of the City, especially the Downtown area. Because of time restraints and lack of existing data on goods movement, this study has not focused on this key element of the transportation system. It is recommended that a comprehensive study of goods movement be undertaken as part of the overall City Transportation Plan.

Measures to Increase Vehicle Occupancy

Because of the extremely high initial cost of building of fixed guideway mass transit system for Los Angeles, the least capital intensive methods of reducing vehicle-miles of travel without sacrificing mobility are to expand the use of existing bus transit and to increase the average occupancy of automobiles. It is recommended that the City continue to support the Commuter Computer efforts to expand carpooling and vanpooling through matching and organizational services and publicizing of the merits of ride-sharing. Continued research should be conducted in the areas of innovative vanpool marketing techniques and organizational procedures.

Improved Service and Preferential Treatment for Buses/High-Occupancy Vehicles

Bus service to Downtown and throughout the City should continue to be increased and upgraded wherever justified by costs and patronage. The Department is presently working with the SCRTD in studying the feasibility of

preferential lane treatments for buses and high-occupancy vehicles (HOV) on surface streets. Preferential timing of traffic signals is also being considered.

As previously discussed, the traffic volumes crossing the north and west sides of the CBD are projected to approach or exceed capacity by 1990. Alternative transit modes with preferential treatments will be needed in these corridors to encourage higher vehicle occupancies and maximize person-flow, thereby reducing the total number of vehicles penetrating the CBD.

Bus volumes are highest on Hill Street (150 per peak hour) and in the Spring Street contraflow bus lane (160 per peak hour north of First Street). The Bureau of Engineering, Traffic Department, and the SCRTD are studying Broadway for possible bus mall treatment, which could ultimately reduce bus volumes on Hill Street and Spring Street.

A proposal for implementation of a bus mall and other high-occupancy vehicle priority lanes, to be funded under SB 283, has been submitted to Caltrans. In addition to the Broadway bus mall, the proposal includes exclusive and/or preferential bus lanes on two major routes which service downtown: 1) Glendale Boulevard from the Glendale Freeway to First Street; and 2) Sunset Boulevard from Sanborn Avenue to Park Avenue. Implementation may require rerouting of some downtown bus lines.

Auto Intercepts with Circulation/Distribution System

The Urban Mass Transportation Administration (UMTA) and the Federal Highway Administration (FHWA) have designated $125 million to assist Los Angeles in constructing an automated guideway transit (People Mover) system in the CBD along a fixed route between the Convention Center and Union Station. The purpose of the People Mover will be to intercept automobile and bus passengers outside the CBD and distribute them to their destinations along the route.

Although the exact alignment of the People Mover has not been finalized, it is probable that the guideway structures will reduce the capacity of some adjacent roadways and the visibility of traffic controls. Compensating improvements will be required. Access to the intercept points at the Convention Center and Union Station will also be a key design element requiring careful consideration of existing and future traffic flow patterns and street capacities.

An elevated People Mover has the advantage of avoiding conflicts with surface street traffic, but is less responsive to changes in patronage and location of demand for service. Because of the flexibility and lower incremental cost of an all-bus (minibus) circulation/distribution system, the minibus alternative to the People Mover should continue to be considered and evaluated.

Parking Management

The manipulation of parking supply and cost is a useful tool in controlling the accumulation of vehicles in an area. As previously discussed, the past cordon counts have shown a correlation between the peak accumulation of vehicles in the CBD and the number of parking spaces. The staff of the City's Parking Management Program is presently evaluating several concepts for using parking availability and cost to influence reductions in vehicle-miles traveled.

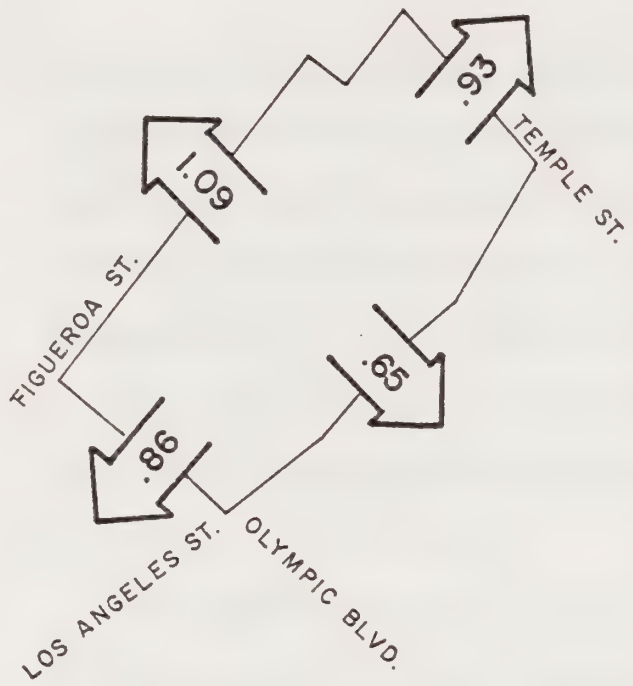
Diversion of Through Traffic

On a 24-hour basis, it has been estimated that as much as 50 percent of the total CBD traffic is composed of through trips. Even though the number of through trips is less than 50 percent during the peak periods, it is apparent that Downtown congestion could be reduced by encouraging through traffic to bypass the CBD. It is recommended that Caltrans be encouraged to study and implement operational improvements on the freeways around the CBD.

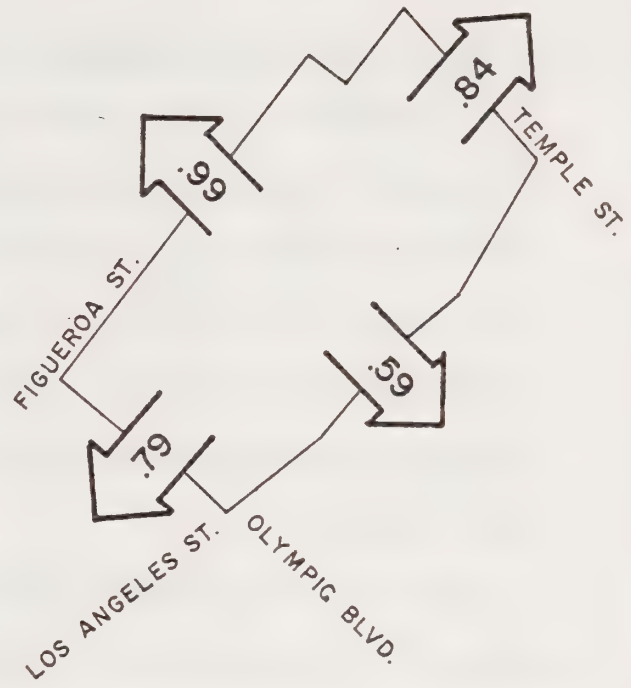
Improvement of surface streets in the CBD fringe areas could also divert through traffic from the congested core areas. For example, the proposed improvement of Olympic Boulevard from Los Angeles Street to San Pedro Street will realign and widen Olympic Boulevard, which is now discontinuous because of jogs at Santee Street and San Julian Street. This project, which is programmed for construction in 1980, will be beneficial in facilitating through traffic. A similar jog elimination project should be considered for Venice Boulevard between Figueroa Street and Grand Avenue.

Summary of Effects of Proposed Improvements

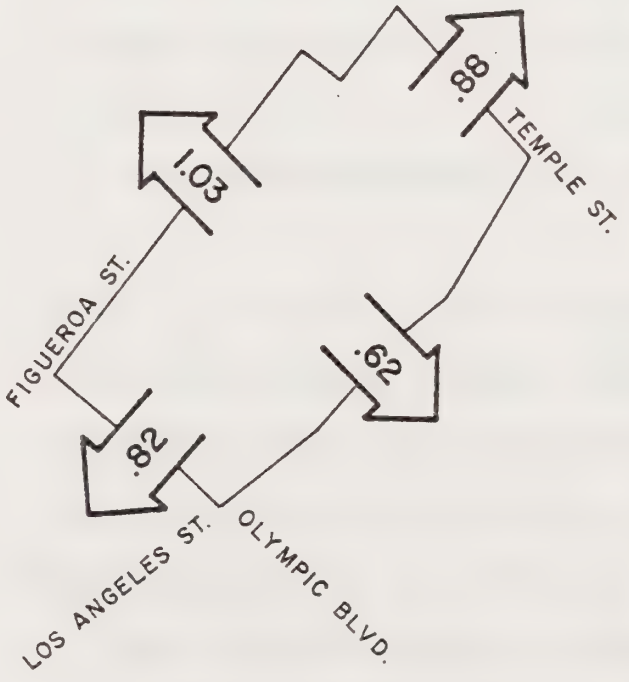
Each category of proposed improvements discussed would affect either the street capacity and quality of traffic flow or the volume of vehicles entering and leaving the CBD. Plate 11 shows the improvement in volume-to-capacity ratios which might reasonably be expected for selected improvements. Even though it is likely that a combination of these alternatives will be implemented, the comparison is useful in determining the sensitivity of the volume-to-capacity ratio to various actions.



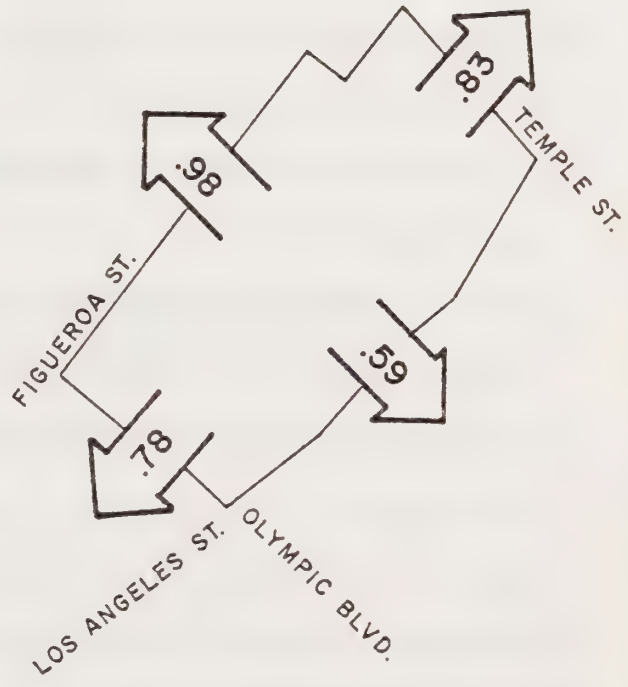
230K Employment Level
(No Other Changes)



Increase Vehicle Occupancy By 10%



5% Operational Improvement thru TSM.



20% Diversion of thru Traffic.

1990 VOLUME/CAPACITY RATIOS FOR VARIOUS ALTERNATIVES

PM. PEAK V/C EXITING LOS ANGELES CBD BOUNDARIES

NOTE:

1. Capacity at Level of Service D.
2. Bus Volumes from CRA - 230k
   All-Bus Self-Distribution System.

City of Los Angeles
DEPARTMENT OF TRAFFIC

PLATE No. 11

G. Criss

WILSHIRE DISTRICT

Existing Conditions

The most densely developed portion of the City that is not served directly by a freeway is the Wilshire District. This area is characterized by intense commercial and residential development which generates significant numbers of auto and transit trips.

Demographic data show that the Wilshire Community Plan area has the greatest number of multiple-family dwelling units and retail employment of any community within the CATS study area, and projections indicate that this trend will continue through 1990. The most concentrated commercial development is proposed in the Wilshire Center, generally bounded by 9th Street, Hoover Street, 3rd Street and Western Avenue, and in the Miracle Mile Center, generally bounded by 3rd Street, Sycamore Avenue, 8th Street and Fairfax Avenue.

Transportation System

The principal access to the Wilshire area is by automobile and bus over a well-developed network of east-west arterial streets. In addition, the District is linked to the Hollywood Freeway and Santa Monica Freeway via north-south major arterials, such as Hoover Street, Vermont Avenue, Western Avenue, Crenshaw Boulevard, La Brea Avenue and La Cienega Boulevard.

Despite the grid pattern of the street system, several north-south routes, including Normandie Avenue, Arlington Avenue and Crenshaw Boulevard/ Rossmore Avenue, are discontinuous due to jogs. These discontinuities result in reduced route capacity and tend to divert through traffic onto local residential streets.

Deficient Speed Segments

A review of past speed and delay data identified several deficient street segments in the Wilshire area. Field studies verified that the following have low average speeds throughout most of the day:

1. Wilshire Boulevard and 6th Street between Western Avenue and Hoover Street.

2. Western Avenue between Adams Boulevard and Melrose Avenue.

3. Vermont Avenue between Adams Boulevard and 6th Street and between Beverly Boulevard and Melrose Avenue.

4. Normandie Avenue and Arlington Avenue/Wilton Place between Pico Boulevard and Beverly Boulevard.

5. Fairfax Avenue from Venice Boulevard to Olympic Boulevard, from Wilshire Boulevard to 6th Street, and from Beverly Boulevard to Melrose Avenue.

6. La Brea Avenue from Venice Boulevard to San Vicente Boulevard and from Wilshire Boulevard to Melrose Avenue.

7. La Cienega Boulevard from Rodeo Road to Fairfax Avenue and from Cadillac Avenue to Venice Boulevard.

Traffic congestion in these areas results from a combination of through traffic, local circulation traffic and poor signal spacing. Because of the proximity of Downtown Los Angeles, through trips between the westside residential areas and Downtown add substantially to the overall travel demand in the Wilshire Corridor.

Traffic Controls

The majority of the arterial streets in the Wilshire District are presently posted with peak-period stopping prohibitions to facilitate the movement of traffic during the morning and evening peak traffic hours. The effective hours of existing morning and evening stopping prohibitions were recently extended on Olympic Boulevard between Robertson Boulevard and Figueroa Street, and new restrictions were installed on the following street segments:

1. Third Street between Cochran Avenue and Manhattan Avenue.

2. Sixth Street between Vermont Avenue and St. Paul Avenue.

3. Normandie Avenue between Pico Boulevard and Olympic Boulevard.

Traffic signals have been installed extensively throughout the Wilshire area to provide for the safe and orderly flow of traffic. Traffic signal density is especially high along Wilshire Boulevard and 6th Street in the Wilshire and Miracle Mile Centers. This signal density contributes to the low capacity and low travel speed prevalent in these areas.

Nearly all of the existing traffic signals are interconnected and are operated in the Wilshire, Hollywood South and West Adams traffic signal systems. Most locations operate on a 60-second cycle during the day, and partial preferential offsets are provided at restrictive timing points to facilitate the heavier direction of traffic flow.

Transit Service

The concentrated land use in the Wilshire District is supportive of mass transit, and the existing bus transit is well utilized. Six out of the nine highest patronized bus lines in the SCRTD system serve the Wilshire District.

Currently, there are between 200 and 250 thousand vehicles traveling east and west on a daily basis in the Wilshire Corridor bounded by Melrose Avenue and Venice Boulevard. Bus volumes represent about 1.2 percent of the daily total traffic. These buses carry between 37,000 (at La Brea Avenue) and 60,000 (at Vermont Avenue) passengers daily across the west and east District boundaries. The mode split to buses is estimated to range between 11 percent of all person-trips at the west boundary and 19 percent at the east boundary.

Similarly, there are between 200 and 240 thousand vehicles traveling north and south in the portion of the Wilshire District bounded by Fairfax Avenue and Vermont Avenue. Bus volumes in this corridor represent only 0.5 percent of the daily traffic. Transit passengers total between 27,000 and 32,000 crossing the south and north sides of the District, respectively. It is estimated that mode split to buses for north-south travel is between 10 and 11 percent.

The largest ridership on the SCRTD bus lines occurs on Wilshire Boulevard, where Line 83 carries about 17,000 persons per day at Wilton Place. The largest volume of buses in the Wilshire District also travels on Wilshire Boulevard. The SCRTD schedule for Line 83 shows 454 buses on a daily basis. The schedule also shows peak-hour volumes of up to 23 buses in each direction at Vermont Avenue. In addition, three other bus lines travel at least a part of Wilshire Boulevard for a total of 37 buses per hour during the peak hour on certain segments. Although bus volumes represent only 1.7 percent of total traffic on Wilshire Boulevard, bus passengers represent about one-third of total person-trips.

Future Conditions and Recommendations

Future demographic projections for the Wilshire District show that retail employment will increase 68 percent and multiple-family dwelling units will increase 6 percent by 1990 to maintain their rank as highest community plan area totals in the CATS study area. Projected population figures indicate that the Wilshire District will rank third in total population behind Northeast Los Angeles and South Central Los Angeles.

According to the recently adopted Wilshire District Plan, the most intensive commercial development is proposed in the Wilshire and Miracle Mile Centers. Consequently, these areas will continue to generate large volumes of vehicular and pedestrian traffic. Although the Plan purportedly does not seek to promote or to hinder growth, it also "does not provide sufficient circulation facilities in both the north-south and east-west directions to meet projected City-wide transportation needs."

Future Traffic Volumes

Traffic volume projections (see Chapter IV) for the area show that, without a significantly increased diversion to transit, east-west traffic volumes will increase 22 to 28 percent by 1990. These volumes will generally exceed the capacity (Level of Service D) of the streets in the Wilshire Boulevard corridor. Similarly, vehicular volumes on north-south streets in the area will grow by 22 percent, increasing congestion on major arterials, such as Vermont Avenue, Western Avenue, La Brea Avenue, Fairfax Avenue and La Cienega Boulevard.

Pedestrian volumes in the Wilshire and Miracle Mile Centers will also increase with intensification of commercial development. Grade-separated

pedestrian walks are suggested by the Wilshire Plan to link the concentrations of facilities in the core areas, to facilitate traffic flow by reducing conflicts and to improve pedestrian safety and convenience.

The future circulation system for the Wilshire District will require improvements in both public transit and the highway network. A better balance between the automobile and public transportation is needed to meet the transportation needs of the community. A coordinated improvement program should be initiated containing the following elements:

1. Transportation Systems Management (TSM) techniques to improve the operational efficiency of the existing system.
2. Selected street widening and construction to reduce capacity bottlenecks.
3. Improvements in public transportation.
4. Evaluation of the feasibility of a fixed-rail or other mass transit facility in the Wilshire Corridor.

Transportation Systems Management

Several operational strategies are recommended for implementation or further study. These include expanded parking restrictions, modified traffic signal timing and operation, off-center lane operations, one-way street couplets, preferential lanes for high-occupancy vehicles, expanded turn prohibitions, installation of left-turn channelization, reduction of pedestrian-vehicle conflicts, etc.

The Department is identifying locations throughout the CATS area which may benefit from the removal of parking and the installation of revised striping and channelization. It is recommended that these operational improvements be evaluated and/or implemented as follows:

1. Normandie Avenue/Irolo Street between Wilshire Boulevard and San Marino Street - install peak-period parking restrictions.

2. Western Avenue between Venice Boulevard and Olympic Boulevard and between 8th Street and north of Wilshire Boulevard - provide channelization and parking restrictions.

3. Western Avenue between the Santa Monica Freeway and Adams Boulevard - study the feasibility of intersection channelization and parking restrictions.

4. Third Street between Beaudry Avenue and Vermont Avenue - install channelization and parking restrictions.

5. Third Street between Croft Avenue and Robertson Boulevard - evaluate the feasibility of channelization and parking restrictions.

6. Beverly Boulevard between Fairfax Avenue and Vermont Avenue - provide offset and/or intersectional channelization.

7. Vermont Avenue between Wilshire Boulevard and Adams Boulevard - evaluate the feasibility of channelization and peak-period parking restrictions.

8. Venice Boulevard between Arlington Avenue and Figueroa Street - evaluate the feasibility of channelization and peak period parking restrictions.

A current study of computerized traffic control by the Department may ultimately result in implementation of sophisticated control strategies which will facilitate traffic flow in the Wilshire area signal network. Other actions such as the removal of traffic signals at restrictive timing points and the development of more reliable traffic signal control equipment also have potential for overall traffic flow improvement.

Substantial increases in capacity may also be obtained through the use of peak-period off-center lanes or one-way streets supplemented with preferential traffic signal timing. A reverse-flow lane is now provided on 8th Street between the Harbor Freeway and Magnolia Avenue in the evening peak period. This operation was begun in April, 1972, and has increased westbound capacity by approximately 30 percent. Past studies have not shown the feasibility of converting other Wilshire District streets to one-way or off-center lane operation. However, it is recommended that

streets such as 6th Street, Wilshire Boulevard, Olympic Boulevard, Pico Boulevard, La Brea Avenue and La Cienega Boulevard continue to be considered for off-center treatment and/or full preferential traffic signal timing as suggested by changes in traffic flow conditions and other factors.

The Wilshire District Plan proposes the improvement of Oxford Avenue to secondary highway standards to form a one-way couplet with Western Avenue between Olympic Boulevard and Melrose Avenue. Because of the high right-of-way and construction costs and impact of additional traffic on Oxford Avenue, implementation of this project may not be feasible. Therefore, it is recommended that both Western Avenue and Vermont Avenue be studied further and that a staged program of operational modifications be developed and implemented in the interim.

Selected Street Improvements

Generally, the major north-south arterial streets are operating at or above theoretical capacity during the morning and evening peak periods. Major streets such as La Brea Avenue and La Cienega Boulevard presently carry up to 60,000 vehicles per day and have projected demand volumes of 72,000 vehicles per day by 1990. The staged improvement of the following secondary highways and collector streets is recommended to absorb the projected area-wide increases in traffic demand.

1. Robertson Boulevard - improve to secondary highway standards.
2. Fairfax Avenue - improve to secondary highway standards.
3. Crescent Heights Boulevard - increase safety by providing roadway width for left-turn channelization at Melrose Avenue, Beverly Boulevard, 3rd Street, 6th Street, and Wilshire Boulevard.
4. Highland Avenue/Edgewood Place - improve capacity and alignment between Wilshire Boulevard and La Brea Avenue.

5. Arlington Avenue/Wilton Place - eliminate jogs in alignment and widen to secondary highway standards.

6. Normandie Avenue/Irolo Street - align and widen to secondary highway standards.

Selected widening and alignment projects should also be evaluated for east-west streets such as Melrose Avenue, Beverly Boulevard, 3rd Street and 6th Street. As suggested in the Wilshire District Plan, a study should be made of the feasibility of upgrading Venice Boulevard to major highway standards from La Brea Avenue to the Central Business District.

Public Transportation Improvements

Continued improvement is needed in the public transportation system to accommodate projected increases in trip demand through and within the Wilshire District and to meet land use, environmental and energy plan goals. Peak-hour commuter service should be expanded, and the various activity centers should be linked by secondary transit circulation systems.

The following short-range actions should be encouraged during the next five years:

1. Expand bus service to and within the Wilshire area, where justified by patronage and costs. Consideration should be given to a minibus-type circulation system in the concentrated core areas.

2. Support and expand computerized carpool and vanpool matching services, marketing services and publicity by organizations such as Commuter Computer.

3. Preferential lanes for buses and high-occupancy vehicles should be considered in conjunction with off-center or one-way street conversions which simultaneously increase overall capacity.

HOLLYWOOD

Introduction

The Hollywood Community plan area is bounded by: Silver Lake-Echo Park district and the Golden State Freeway to the east; Burbank, Glendale, Universal City and the Sherman Oaks-Studio City district to the north; Beverly Hills and the County of Los Angeles to the west; and the Wilshire District to the south. Despite the vastness of the district, many of the transportation problems are concentrated in the Central Hollywood area between Franklin Avenue and Sunset Boulevard to the north and south and between Gower Street and La Brea Avenue to the east and west.

The Central Hollywood area has suffered a general decline in business activity in recent years. Employment in the entertainment industry has fluctuated, affecting the life-style of its employees and the residents of the area. The proliferation of marginal business ventures with small volume shops and services typifies the present business activity of the area.

The influx of tourists has continued throughout this decline at the rate of over 3 million persons per year. However, the dissatisfaction of tourists with the condition of the area has also grown as indicated in a recent survey.

A "Revitalize Hollywood" Task Force has been created to identify and attack specific problems within the Central Hollywood area. The Task Force has prepared the Hollywood Revitalization Plan as an amendment to the Hollywood Community Plan adopted in 1973. Prepared for the Office of Economic Development with coordination from Councilwoman Stevenson's Office, the Hollywood Revitalization Plan is currently being evaluated by City forces and citizens of the area. Some general comments regarding the recommendations for improvements to the transportation system are discussed later in this section.

Traffic and Person-Trip Volumes

To assess the demands on the existing street system and to provide a data base to determine future trends in traffic and person flow, this Department conducted a Central Hollywood cordon study in 1976. The study, similar to the biennial Downtown Cordon Count, consisted of manual and automatic traffic counts on all streets entering and leaving the area bounded by Gower Street, De Longpre Avenue, La Brea Avenue and Franklin Avenue/Yucca Street. The Southern California Rapid Transit District also supplied information regarding bus frequency and ridership.

Data were collected during a 16-hour period from 6 AM to 10 PM and were summarized to indicate vehicle and person movement for each location into and out of the cordon area for each half-hour period of the study.

The vehicular total entering the area was 173,150 vehicles, and 168,920 vehicles were recorded exiting through the cordon stations for a total of 342,070 vehicles. The corresponding person total consisted of 276,960 persons entering and 267,880 persons exiting for a sum of 544,840. The division of total auto passengers (439,410) by total passenger cars (313,680) yields an average occupancy rate of 1.40 persons per vehicle which is somewhat higher than rates from other studies (1.39 for Downtown Los Angeles in May, 1976, and 1.28 for Westwood-UCLA in May, 1975).

A volume of 23,700 southbound vehicles recorded on Highland Avenue south of Franklin Avenue was the largest (one-way) total entering the area, and the 20,940 southbound vehicles counted on Highland Avenue north of DeLongpre Avenue represented the most vehicles exiting from the cordon. Other heavily traveled streets included Sunset Boulevard, Hollywood Boulevard and Vine Street. Over 50 percent of the trucks entering and exiting the area

utilized Highland Avenue and Sunset Boulevard. A recent Departmental staff report ranked Highland Avenue north of Franklin Avenue as the second highest volume arterial in the City and listed six Highland Avenue intersections among the top 19 high-volume surface street intersections (See Table 1).

Buses were only recorded on six streets (Hollywood Boulevard, Highland Avenue, Sunset Boulevard, Vine Street, Cahuenga Boulevard and Argyle Avenue). Bus travel into and out of the cordon area on Hollywood Boulevard constituted almost 50 percent of all bus trips.

A summary of person movement indicated that the largest number of people entering and leaving the study zone in autos traveled on Highland Avenue south of Franklin Avenue. The largest bus passenger concentration was on Hollywood Boulevard east of La Brea where the 10,630 persons entering and exiting represented over 25 percent of all bus passengers in the area. This total, combined with the other Hollywood Boulevard passenger counts east of Gower Street, composed over 50 percent of all bus passenger trips. Manual pedestrian counts recorded 18,670 persons entering the study area on foot, with the major concentration located near Highland Avenue south of Franklin Avenue and on Hollywood Boulevard and Sunset Boulevard west of Gower Street.

The rate of vehicles entering the area was generally highest from 1 PM to 6:30 PM, and the rate exiting was greatest between 2:30 PM and 6:30 PM. Similarly, total person-trips in and out were also concentrated during the afternoon and evening hours, although bus trips were maximized during the conventional morning and afternoon peak periods.

A breakdown of vehicles by classification revealed 92.0 percent were passenger cars, 7.4 percent were trucks and other vehicles and 0.6 percent

were buses. Similar statistics for persons entering the cordon area showed 80.9 percent transported as auto passengers, 7.8 percent as bus passengers, 6.7 percent walking into the area, and 4.6 percent as passengers in trucks and other vehicles.

Access to the Area

Freeway access to and through the Hollywood area was significantly improved recently with the completion of a widening project on the Hollywood Freeway through the Cahuenga Pass from Highland Avenue to Sunset Boulevard. This project added a fourth lane in each direction of travel.

In conjunction with the widening project, ramp metering was installed for northbound traffic on the Hollywood Freeway from Hollywood Boulevard to the Ventura Freeway during the evening peak period, and for southbound traffic from the Ventura Freeway to Argyle Avenue during the morning peak period. Further metering was installed for southbound traffic at the Vermont Avenue, Silverlake Boulevard, and Glendale Boulevard on-ramps for the morning peak, and the Rampart Boulevard on-ramp is closed during the morning period. The remainder of the on-ramps from the Los Angeles CBD to Hollywood Boulevard are scheduled for ramp control during 1977.

Access to the Hollywood area is restricted from the north by mountainous terrain, and peak period volumes exceed capacity on many of the cross-mountain roads. Consequently, traffic often diverts to narrow, residential roadways. Efforts to widen the existing cross-mountain arterials or to construct new highways have met strong resistance from local residents, as evidenced by the deletion of the Laurel Canyon Freeway from the State Master Plan of Freeways and Expressways. However, traffic volumes continue to increase and some actions must be taken to improve safety and accessibility to the area.

Critical Capacity Intersections in Central Hollywood

To comparatively rank key intersections in the Central Hollywood area by volume/capacity ratio and level of service, analysis of traffic and roadway data was conducted employing "Intersectional Capacity Utilization" (ICU) techniques, (see Table 10).

Briefly, ICU represents the proportion of the total hour required to accommodate intersectional volumes at Level of Service E, which is recognized as the ultimate roadway capacity (ultimate capacity assumes parking restrictions). The ratio of existing volume to capacity indicates the intersectional level of service ranging from free flow and high speeds found at Level of Service A to forced flow and low speeds represented by Level of Service F.

The data and field observations reveal that the intersections of Sunset Boulevard and Vine Street and Highland Avenue and Hollywood Boulevard are operating under stable flow conditions during the critical PM peak hour. The north intersection of Franklin Avenue and Highland Avenue and the intersection of La Brea Avenue and Sunset Boulevard are experiencing congestion and unstable flow. The worst conditions, however, are found at Highland Avenue and Sunset Boulevard and at the south intersection of Franklin Avenue and Highland Avenue where forced flow, long queues, and severe congestion are typical during peak periods.

TABLE 10

Capacity Utilization of Selected Hollywood Intersections

Intersection	Critical Directional Movement	PM Peak Hour - 1977 Volume	Capacity(1) (Level E)	V/C Ratio
Highland Avenue and Hollywood Boulevard	SB	1641	4087	0.40
	EB	1071	4157	0.26
	Yellow			0.08
	I.C.U.(2)			0.74
	L.O.S.(3)			C
Franklin Avenue and Highland Avenue				
North I/S	SB	2389	4605	0.52
	WB	592	2315	0.26
	Yellow			0.08
	I.C.U.			0.86
	L.O.S.			C
South I/S	SB RT	1403	2005	0.70
	EB	1365	2715	0.50
	Yellow			0.08
	I.C.U.			1.28
	L.O.S.			F
Highland Avenue and Sunset Boulevard	NB	2380	4580	0.52
	WB	1552	4515	0.34
	EB LT	178	1200	0.15
	Yellow			0.12
	I.C.U.			1.13
	L.O.S.			F
La Brea Avenue and Sunset Boulevard	WB	1387	4515	0.31
	SB	1173	4445	0.26
	EB LT	153	1200	0.13
	NB LT	102	1200	0.08
	Yellow			0.16
	I.C.U.			0.94
	L.O.S.			E
Sunset Boulevard and Vine Street	NB	1019	4035	0.25
	WB	1507	4172	0.36
	Yellow			0.08
	I.C.U.			0.69
	L.O.S.			B

(1)Capacity per hour of green time
(2)I.C.U. = Intersection Capacity Utilization
(3)L.O.S. = Level of Service

Traffic Controls

Traffic signals in the Central Hollywood area are linked by the Hollywood and Hollywood South traffic signal systems, which provide coordinated traffic signal operation. The systems include multi-dial controllers to produce changes in signal timing for different periods during the day. Multiphase traffic signal operation has been utilized at several locations including Sunset Boulevard and Highland Avenue and Sunset Boulevard and La Brea Avenue to facilitate turning movements. Although the multiphase operation has improved safety for turning movements, the inherent capacity reduction has resulted in congestion on Sunset Boulevard.

Channelization techniques have been employed, as well as peak period and other parking restrictions to facilitate traffic flow. An off-center lane is provided on Highland Avenue from Alta Loma Terrace to south of Sunset Boulevard by traffic cones in the evening peak period and by permanent striping the remainder of the day.

Accident Data

As indicated in a previous section of this report, there is a concentration of high-accident locations in the eastern portion of the Hollywood Community between Wilton Place and Vermont Avenue. Four intersections on Sunset Boulevard and on Western Avenue between Santa Monica Boulevard and Franklin Avenue have accident rates exceeding 1.0 accidents per million vehicles. Various traffic engineering safety modifications will be evaluated at these and other locations.

Future Conditions and Recommendations

Based on demographic data developed in a previous section of this report, traffic is anticipated to increase 26-28 percent on streets in the Central Hollywood area by 1990. This increase is spawned by an anticipated 3 percent increase in population, an 11 percent increase in multiple dwelling units and an 85 percent increase in retail employment.

Several key intersections in the Central Hollywood area, notably Sunset Boulevard and Highland Avenue, Sunset Boulevard and La Brea Avenue, and Highland Avenue and Franklin Avenue are presently exceeding capacity during a substantial portion of the day. The projected increases in future traffic volumes will further degrade traffic service in these areas.

It is recommended that secondary routes such as Fountain Avenue, Franklin Avenue/Gardner Street, and Wilcox Avenue be improved as alternatives to Sunset Boulevard, Hollywood Boulevard and Highland Avenue. In addition, localized widening and operational improvements are needed immediately at critical intersections such as Highland Avenue and Franklin Avenue and Highland Avenue and Sunset Boulevard to alleviate existing congestion.

The projected increase in traffic demands can be somewhat mitigated by other planned improvements to the existing street system. However, due to current funding constraints and the lengthy process involved in acquiring right-of-way, there is uncertainty as to the number of projects that will be constructed by 1990. Only two street improvements are scheduled for completion within the next five years in the Central Hollywood area, and both are located on Hollywood Boulevard. The first extends from west of Gower Street

to east of Western Avenue and the second from east of Formosa Avenue to east of La Brea Avenue. These improvements will facilitate the movement of traffic by increasing the carrying capacity of Hollywood Boulevard.

Of those planned projects that are currently not scheduled for construction during the next five years, the most controversial and expensive is the proposed improvement to the jogged intersection of Franklin Avenue and Highland Avenue. Originally initiated during the late 1960's, this proposal would require extensive right-of-way and funding. However, there has been considerable debate during the past few years on whether the benefits gained would exceed the costs incurred. An updated feasibility study is presently being conducted by the Department of Traffic.

A major construction project that would have improved access to the Hollywood area was the Beverly Hills (Route 2) Freeway, but recent public opposition has caused the project to be deleted from the California Freeway System. Some Route 2 transportation corridor studies have been conducted to develop alternatives to the freeway, but no solution to the problem has been implemented. It is recommended that detailed studies of proposed improvements be conducted and that needed improvements be implemented.

Transit and High-Occupancy Vehicles

The entry of fixed-rail transit into the Los Angeles transportation equation has focused on the Wilshire-North Hollywood corridor. The proposed starter line would provide service between Downtown Los Angeles and North Hollywood. Route alternatives are currently being analyzed by SCRTD through funding from UMTA for preliminary engineering. However, increased bus service may be more appropriate if studies do not prove the rail transit system to be cost-effective.

The implementation of increased bus service in the Hollywood area is an important key to furnishing accessibility and circulation, particularly to senior citizens and lower income groups. Whether this accessibility is accomplished with standard buses or paratransit vehicles, such as dial-a-ride, jitneys, shared taxis, etc., the full utilization of these services may depend on the reduction of automobile dependency by the public. Measures such as high-occupancy vehicle lanes, preferential treatment to buses, and other TSM actions may become more popular as energy and capital resources diminish.

Street System

As previously mentioned, the Hollywood Revitalization Plan contains many strategies that would affect the existing transportation system including street closures, turn prohibitions, median construction, freeway signing, traffic signal modifications, parking structure configurations, sidewalk widening, etc. The scope and timing of this report does not permit analysis of each recommendation. However, it is apparent that more careful consideration must be given to all alternatives prior to implementation.

For instance, modifying channelization to provide an additional lane northbound on Highland Avenue and southbound on La Brea Avenue should benefit the predominate direction of flow, but the simultaneous prohibition of left turns on these streets may divert traffic to local streets and increase trip lengths. Similarly, the installation of a median island on Highland Avenue at Franklin Avenue and restriction of both approaches of Franklin Avenue to right turns only will divert considerable traffic to parallel streets and increase turning demands at other locations. The suggested installation of left-turn phasing at numerous locations would increase turning capacity, but not without hindering signal coordination for through traffic and reducing overall intersection capacity. Therefore, although some proposals appear beneficial on a microscopic scale, additional evaluation is needed to determine

negative impacts associated with the proposals and possible mitigating countermeasures.

Other transportation improvements which merit further consideration include the construction of a tunnel through the hillside area in the Fairfax Avenue/Laurel Canyon Boulevard sector from Hollywood to the San Fernando Valley to provide another avenue of access and reduce congestion on the existing cross-mountain routes. A study should be conducted with the Bureau of Engineering to evaluate alternatives to improve circulation and cross-mountain travel in this corridor, including the tunnel option.

The widening of Beverly Boulevard, Melrose Avenue, Santa Monica Boulevard, Fountain Avenue, Franklin Avenue, and Western Avenue to full major and secondary highway widths would significantly increase capacity in the district. On narrower high-volume streets, such as Cole Avenue and Cahuenga Boulevard south of Sunset Boulevard, the establishment of a one-way couplet may be appropriate.

A portion of the Hollywood South traffic signal system has not been modernized because of cancellation of Street Lighting Assessment District projects. The Hollywood South system improvement project, currently scheduled for construction in 1979-80, will modernize and complete the interconnection of 41 locations in this system. It is recommended that this project be designed and constructed as scheduled to improve safety and traffic flow.

LONG BEACH (ROUTE 7) FREEWAY EXTENSION

The completion of the Long Beach Freeway from Valley Boulevard to the Foothill Freeway is essential to provide adequate access and relieve street congestion in the El Sereno and Monterey Hills sections of the Northeast Los Angeles District.

The freeway was constructed to the current northerly terminus at Valley Boulevard in 1965, while the southerly terminating section just south of the Foothill Freeway in Pasadena was opened to traffic in 1976. The intervening, unconstructed five-mile link has been the subject of considerable debate and legal action, with South Pasadena opposing the freeway alignment and the cities of Alhambra, Los Angeles and Pasadena favoring construction.

The most recent proposal from Caltrans would extend the Long Beach Freeway south from the Foothill Freeway to connect with the Pasadena Freeway. This proposal does not provide for any freeway facility south of the Pasadena Freeway to Valley Boulevard, thereby disregarding the needs of the public in this area, as well as through traffic on the 21-mile reach from Long Beach to Valley Boulevard. The outcome of the litigation is still pending in United States District Court.

Failure to complete the missing freeway link will result in overloading of Huntington Drive, Monterey Road, Eastern Avenue, and Valley Boulevard within the City of Los Angeles. The eastern extensions of these streets in other jurisdictions will also experience severe congestion, as well as other north-south arterials such as Fremont Avenue, Fairoaks Avenue, Atlantic Boulevard, and Garfield Avenue.

Furthermore, the current lack of a freeway facility, plus existing on-street delay has motivated motorists to seek circuitous routes through residential areas on substandard streets. As a result, the City of South Pasadena closed via Del Rey at the City of Los Angeles boundary, supported by a court decision rendered in February, 1976. The City of Los Angeles acted in a similar manner in June, 1976, closing Alpha Street at the South Pasadena border.

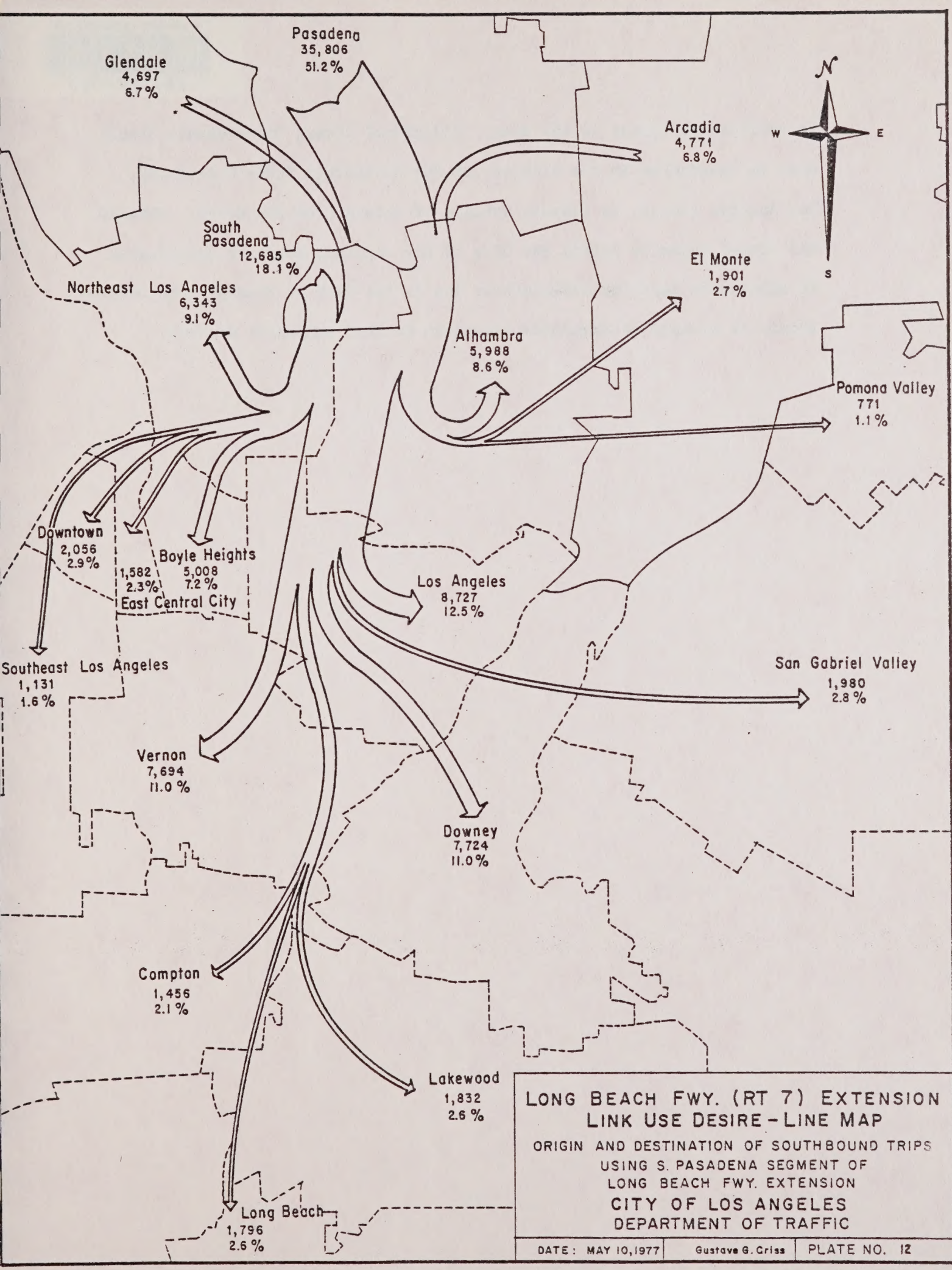
Despite these closures and other traffic annoyances (e.g., midblock stop signs, speed bumps, left-turn prohibitions, etc.), field observations have disclosed continued usage of the local street system by through traffic.

The observed and latent demand for utilization of the Long Beach Freeway corridor in this area was further evidenced by the development of a freeway link-use desire-line map shown in Plate 12. The map depicts the results of a computer simulation of trips produced in selected analysis zones in the communities of South Pasadena, Pasadena, La Canada, Arcadia, and La Crescenta and attracted to destinations in other community plan areas that would use the freeway link from California Boulevard to Valley Boulevard.

The simulation utilized an all-or-nothing assignment that groups trips on the basis of the least time required for trip completion. Of the 70,000 southbound freeway trips produced in the selected zones, over 80 percent would use the subject freeway link, indicating the need for a completed freeway system in this area.

Recommendations

The City of Los Angeles should implement all possible actions to promote the construction of the Long Beach Freeway between Valley Boulevard and California Boulevard. If this section is deleted from the State Master Plan of Freeways and Expressways, consideration should be given to extending the freeway, in some manner, north to Huntington Drive which provides better access



LONG BEACH FWY. (RT 7) EXTENSION
LINK USE DESIRE - LINE MAP

ORIGIN AND DESTINATION OF SOUTHBOUND TRIPS
USING S. PASADENA SEGMENT OF
LONG BEACH FWY. EXTENSION

CITY OF LOS ANGELES
DEPARTMENT OF TRAFFIC

DATE: MAY 10, 1977	Gustave G. Criss	PLATE NO. 12

to north-south routes in the area. Additional street improvements should also be undertaken in the vicinity of the California State University, Los Angeles campus, to improve avenues of access from the north. Finally, all street segments within the City of Los Angeles, that are anticipated to experience capacity deficiencies due to the lack of freeway construction, should be widened to standards necessary to meet vehicular demands.